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# ARCHITECTURAL MAGAZINE.

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## ORIGINAL COMMUNICATIONS.

### Art. I. *The Poetry of Architecture.* By Kata Phusin.

No. 3. The Villa. (Continued.)

II. *The Lowland Villa. — England.*

Although, as we have frequently observed, our chief object in these papers is, to discover the connexion existing between national architecture and character, and, therefore, is one leading us rather to the investigation of what is, than of what ought to be, we yet consider that the subject would be imperfectly treated, if we did not, at the conclusion of the consideration of each particular rank of building, endeavour to apply such principles as may have been demonstrated to the architecture of our country, and to discover the *beau idéal* of English character, which should be preserved through all the decorations which the builder may desire, and through every variety which fancy may suggest. There never was, and never can be, a universal *beau idéal* in architecture, and the arrival at all local models of beauty would be the task of ages; but we can always, in some degree, determine those of our own lovely country. We cannot, however, in the present case, pass from the contemplation of the villa of a totally different climate, to the investigation of what is beautiful here, without the slightest reference to styles now, or formerly, adopted for our own "villas," if such they are to be called; and, therefore, it will be necessary to devote a short time to the observance of the peculiarities of such styles, if we possess them, or, if not, of the causes of their absence.

We have therefore headed this paper, "The Villa, England;" awakening, without doubt, a different idea in the mind of every one who reads the words. Some, accustomed to the appearances of metropolitan villas, will think of brick buildings, with infinite appurtenances of black nicked chimney-pots, and plastered fronts, agreeably varied with graceful cracks, and undulatory shades of pink, brown, and green, communicated to the cement by smoky showers. Others will imagine large, square, many-windowed masses of white, set with careful choice of situation exactly where they will spoil the landscape to such

a conspicuous degree, as to compel the gentlemen travelling on the outside of the mail to enquire of the guard, with great eagerness, "whose place that is;" and to enable the guard to reply, with great distinctness, that it belongs to Squire ——, to the infinite gratification of Squire ——, and the still more infinite edification of the gentlemen on the outside of the mail. Others will remember masses of very red brick, groined with stone; with columnar porticoes, about one third of the height of the building, and two niches, with remarkable-looking heads and bag-wigs in them, on each side; and two teapots, with a pocket-handkerchief hanging over each (described to the astonished spectator as "Grecian urns"), located upon the roof, just under the chimneys. Others will go back to the range of Elizabethan gables; but none will have any idea of a fixed character, stamped on a class of national edifices. This is very melancholy, and very discouraging; the more so, as it is not without cause. In the first place, Britain unites in itself so many geological formations, each giving a peculiar character to the country which it composes, that there is hardly a district five miles broad, which preserves the same features of landscape through its whole width.* If, for example, six foreigners were to land severally at Glasgow, at Aberystwith, at Falmouth, at Brighton, at Yarmouth, and at Newcastle, and to confine their investigations to the country within twenty miles of them, what different impressions would they receive of British landscape! If, therefore, there be as many forms of edifice as there are peculiarities of situation, we can have no national style; and, if we abandon the idea of a correspondence with situation, we lose the only criterion capable of forming a national style.†

* Length is another thing: we might divide England into strips of country, running south-west and north-east, which would be composed of the same rock, and, therefore, would present the same character throughout the whole of their length. Almost all our great roads cut these transversely, and, therefore, seldom remain for ten miles together on the same beds.

† It is thus that we find the most perfect schools of architecture have arisen in districts whose character is unchanging. Looking to Egypt first, we find a climate inducing a perpetual state of heavy feverish excitement, fostered by great magnificence of natural phenomena, and increased by the general custom of exposing the head continually to the sun (Herod. Thalia, xii.); so that, as in a dreaming fever, we imagine distorted creatures and countenances moving and living in the quiet objects of the chamber. The Egyptian endowed all existence with distorted animation; turned dogs into deities, and leeks into lightning-darters; then gradually invested the blank granite with sculptured mystery, designed in superstition, and adored in disease; and then such masses of architecture arose as, in delirium, we feel crushing down upon us with eternal weight, and see extending far into the blackness above; huge and shapeless columns of colossal life; immense and immeasurable avenues of mountain stone. This was a perfect, that is, a marked, enduring, and decided, school of architecture, induced by an unchanging and peculiar character of climate. Then, in the purer air, and among

Another cause to be noticed is, the peculiar independence of the Englishman's disposition; a feeling which prompts him to suit his own humour, rather than fall in with the prevailing cast of social sentiment, or of natural beauty and expression; and which, therefore, there being much obstinate originality in his mind, produces strange varieties of dwelling, frequently rendered still more preposterous by his love of display; a love universally felt in England, and often absurdly indulged. Wealth is worshipped in France, as the means of purchasing pleasure; in Italy, as an instrument of power; in England, as the means "of showing off." It would be a very great sacrifice indeed, in an Englishman of the average stamp, to put his villa out of the way, where nobody would ever see it, or think of *him:* it is his ambition to hear every one exclaiming, "What a pretty place! whose can it be?" and he cares very little about the peace which he has disturbed, or the repose which he has interrupted; though, even while he thus pushes himself into the way, he keeps an air of sulky retirement, of hedgehog independence, about his house, which takes away any idea of sociability or good-humour, which might otherwise have been suggested by his choice of situation. But, in spite of all these unfortunate circumstances, there are some distinctive features in our English country houses, which are well worth a little attention. First, in the approach, we have one component part of effect, which may be called peculiarly our own, and which requires much study before it can be managed well, — the avenue. It is true, that we meet with noble lines of timber trees cresting some of the larger bastions of Continental fortified cities; we see interminable regiments of mistletoed apple trees flanking the carriage road; and occasionally we approach a turreted château* by a broad way, "edged with poplar pale." But, allowing all this, the legitimate glory of the perfect avenue is ours still, as will appear by a little consideration of the elements which constitute its beauty. The original idea was given by the opening of the

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the more refined energies of Greece, architecture rose into a more studied beauty, equally perfect in its school, because fostered in a district not 50 miles square, and in its dependent isles and colonies, all of which were under the same air, and partook of the same features of landscape. In Rome, it became less perfect, because more imitative than indigenous, and corrupted by the travelling, and conquering, and stealing ambition of the Roman; yet still a school of architecture, because the whole of Italy presented the same peculiarities of scene. So with the Spanish and Moresco schools, and many others; passing over the Gothic, which, though we hope hereafter to show it to be no exception to the rule, involves too many complicated questions to be now brought forward as a proof of it.

* Or a city. Any one who remembers entering Carlsruhe from the north, by the two miles of poplar avenue, remembers entering the most soulless of all cities, by the most lifeless of all entrances.

tangled glades in our most ancient forests. It is rather a curious circumstance, that, in those woods whose decay has been chiefly instrumental in forming the bog districts of Ireland, the trees have, in general, been planted in symmetrical rows, at distances of about twenty feet apart. If the arrangement of our later woods be not quite so formal, they, at least, present frequent openings, carpeted with green sward, and edged with various foliage, which the architect (for so may the designer of the avenue be entitled) should do little more than reduce to symmetry and place in position, preserving, as much as possible, the manner and the proportions of nature. The avenue, therefore, must not be too long. It is quite a mistake, to suppose that there is sublimity in a monotonous length of line, unless, indeed, it be carried to an extent generally impossible, as in the case of the long walk at Windsor. From three to four hundred yards is a length which will display the elevation well, and will not become tiresome from continued monotony. The kind of tree must, of course, be regulated by circumstances; but the foliage must be unequally disposed, so as to let in passages of light across the path, and cause the motion of any object along it to change, like an undulating melody, from darkness to light. It should meet at the top, so as to cause twilight, but not obscurity, and the idea of a vaulted roof, without rigidity. The ground should be green, so that the sun-light may tell with force wherever it strikes. Now, this kind of rich and shadowy vista is found in its perfection only in England: it is an attribute of green country; it is associated with all our memories of forest freedom, of our wood rangers, and yeomen with the "doublets of the Lincoln green; with our pride of ancient archers, whose art was fostered in such long and breezeless glades; with our thoughts of the merry chases of our kingly companies, when the dewy antlers sparkled down the intertwined paths of the windless woods, at the morning echo of the hunter's horn; with all, in fact, that once contributed to give our land its ancient name of "merry" England; a name which, in this age of steam and iron, it will have some difficulty in keeping.

This, then, is the first feature we would direct attention to, as characteristic, in the English villa: and be it remembered, that we are not speaking of the immense lines of foliage which guide the eye to some of our English palaces, for those are rather the adjuncts of the park than the approach to the building; but of the more laconic avenue, with the two crested columns and the iron gate at its entrance, leading the eye, in the space of a hundred yards or so, to the gables of its grey mansion. A good instance of this approach may be found at Petersham, by following the right side of the Thames for about half a mile from Richmond Hill; though the house, which, in this case,

is approached by a noble avenue, is much to be reprehended, as a bad mixture of imitation of the Italian with corrupt Elizabethan; though it is somewhat instructive, as showing the ridiculous effect of statues out of doors in a climate like ours.

And now that we have pointed out the kind of approach most peculiarly English, that approach will guide us to the only style of villa architecture which can be called English, — the Elizabethan, and its varieties; a style fantastic in its details, and capable of being subjected to no rule, but, as we think, well adapted for the scenery in which it arose. We allude not only to the pure Elizabethan, but even to the strange mixtures of classical ornaments with Gothic forms, which we find prevailing in the sixteenth century. In the most simple form, we have a building extending round three sides of a court, and, in the larger halls, round several interior courts, terminating in sharply gabled fronts, with broad oriels divided into very narrow lights by channeled mullions, without decoration of any kind; the roof relieved by projecting dormer windows, whose lights are generally divided into three, terminating in very flat arches without cusps, the intermediate edge of the roof being battlemented. Then we find wreaths of ornament introduced at the base of the oriels*; ranges of short columns, the base of one upon the capital of another, running up beside them; the bases being very tall, sometimes decorated with knots of flower-work; the columns usually fluted, wreathed, in richer examples, with ornament. The entrance is frequently formed by double ranges of these short columns, with intermediate niches, with shell canopies, and rich crests above.† This portico is carried up to some height above the roof, which is charged with an infinite variety of decorated chimneys. Now, all this is utterly barbarous as architecture: but, with the exception of the chimneys, it is not false in taste; for it was originally intended for retired and quiet habitations in our forest country, not for conspicuous palaces in the streets of the city; and we have shown, in speaking of green country, that the eye is gratified with fantastic details; that it is prepared, by the mingled lights of the natural scenery, for rich and entangled ornament, and would not only endure, but demand, irregularity of system in the architecture of man, to correspond with the infinite variety of form in the wood architecture of nature. Few surprises can be imagined more delightful than the breaking out of one of these rich gables, with its decorated entrance, among the dark trunks and twinkling leaves

* As in a beautiful example in Brasen-nose College, Oxford.

† The portico of the schools, and the inner courts, of Merton and St. John's Colleges, Oxford; an old house at Charlton, Kent; and Burleigh House, will probably occur to the mind of the architect, as good examples of the varieties of this mixed style.

127

of forest scenery. Such an effect is rudely given in *fig.* 127. We would direct the attention chiefly to the following points in the building: —

First, it is a humourist, an odd, twisted, independent being, with a great deal of mixed, obstinate, and occasionally absurd, originality. It has one or two graceful lines about it, and several harsh and cutting ones: it is a whole, which would allow of no unison with any other architecture; it is gathered in itself, and would look very ugly indeed, if pieces in a purer style of building were added. All this corresponds with points of English character, with its humours, its independency, and its horror of being put out of its own way. Again, it is a thoroughly domestic building, homely and cottage-like in its prevailing forms, awakening no elevated ideas, assuming no nobility of form. It has none of the pride, or the grace of beauty, none of the dignity of delight, which we found in the villa of Italy; but it is a habitation of every-day life, a protection from momentary in-

convenience, covered with stiff efforts at decoration, and exactly typical of the mind of its inhabitant: not noble in its taste, not haughty in its recreation, not pure in its perception of beauty; but domestic in its pleasures, fond of matter of fact rather than of imagination, yet sparkling occasionally with odd wit and grotesque association. The Italian obtains his beauty, as his recreation, with quietness, with few and noble lines, with great seriousness and depth of thought, with very rare interruptions to the simple train of feeling. But the Englishman's villa is full of effort: it is a business with him to be playful, an infinite labour to be ornamental: he forces his amusement with fits of contrasted thought, with mingling of minor touches of humour, with a good deal of sulkiness, but with no melancholy; and, therefore, owing to this last adjunct, the building, in its original state, cannot be called beautiful, and we ought not to consider the effect of its present antiquity, evidence of which is, as was before proved, generally objectionable in a building devoted to pleasure, and is only agreeable here, because united with the memory of departed pride.

Again, it is a life-like building, sparkling in its casements, brisk in its air, letting much light in at the walls and roof, low and comfortable-looking in its door. The Italian's dwelling is much walled in, letting out no secrets from the inside, dreary and drowsy in its effect. Just such is the difference between the minds of the inhabitants; the one passing away in deep and dark reverie, the other quick and business-like, enjoying its every-day occupations, and active in its ordinary engagements.

Again, it is a regularly planned, mechanical, well-disciplined building; each of its parts answering to its opposite, each of its ornaments matched with similarity. The Italian (where it has no high pretence to architectural beauty) is a rambling and irregular edifice, varied with uncorresponding masses: and the mind of the Italian we find similarly irregular, a thing of various and ungovernable impulse, without fixed principle of action; the Englishman's, regular and uniform in its emotions, steady in its habits, and firm even in its most trivial determinations.

Lastly, the size of the whole is diminutive, compared with the villas of the south, in which the effect was always large and general. Here the eye is drawn into the investigation of particular points, and miniature details; just as, in comparing the English and Continental cottages, we found the one characterised by a minute finish, and the other by a massive effect, exactly correspondent with the scale of the features and scenery of their respective localities.

It appears, then, from the consideration of these several points, that, in our antiquated style of villa architecture, some national

feeling may be discovered; but in any buildings now raised there is no character whatever: all is ridiculous imitation, and despicable affectation; and it is much to be lamented, that now, when a great deal of attention has been directed to architecture on the part of the public, more efforts are not made to turn that attention from mimicking Swiss *châlets*, to erecting English houses. We need not devote more time to the investigation of *purely* domestic English architecture, though we hope to derive much instruction and pleasure from the contemplation of buildings partly adapted for defence, and partly for residence. The introduction of the means of defence is, however, a distinction which we do not wish at present to pass over; and, therefore, in our next paper, we hope to conclude the subject of the villa, by a few remarks on the style now best adapted for English scenery.

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ART. II. *On the Philosophy of Architecture.* From the German of Weinbrenner. Translated for the "Architectural Magazine" by M. L.

WEINBRENNER was born in Nov. 1766, and died in 1826; he resided, during the greater part of his life, as an architect at Carlsruhe, where he built the theatre, and erected a great number of other buildings, public and private. The theatre at Leipsig, the Conversations- haus, or Ridotto, at Baden, the church at Scherzheim, another at Langensteinbach, the Riding-house at Heidelberg, and General Miloradovitch's seat in the Crimea, were also designed by him. He is the author of various publications; but the principal one is his *Architektonisches Lehrbuch*, in two vols., imperial folio, from which we have had this article translated, and two or three others which will follow, in order to complete the subject. Weinbrenner had numerous pupils afterwards eminent in their profession, among whom were Moller, Heger, and M. De Châteauneuf. The translation is strictly literal, and the greatest attention has been paid to giving the exact meaning of the author.

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### PART I. ON FORM AND BEAUTY.

*Weinbrenner's Introduction.*— I HAVE begun the first part of the first book of my Principles of Architecture, which embraces the principles of drawing, with a newly arranged theory of geometrical drawing, which I lay before my pupils, and practise them in, before any other sort of work, that the learner, by exercising himself in drawing, may be led to think.

In the same manner, I will now endeavour in this third book, which is to embrace the study of the higher walks of architecture, to set forth in this and the two following parts, an equally

scientific doctrine of forms and ornaments, which I have hitherto put into the hands of my pupils with success, as a foundation in the transition from material construction (materialien Konstruction) to the higher art of building; and, by this means, to furnish the young artist with an exalted model (ästhetische Norm) for a correct judgment of forms and their ornaments, according to their various uses and connexions.

It is usual, when the young architect begins the study of the higher walk of his art, to lay before him the orders of architecture, or small designs to copy, by which his capacity of invention of form is crushed; because, in general, he is only required to make a faithful imitation of the original before him, without the due consideration of the harmonious agreement of the form to the end in view.

By making this sort of copies, young men acquire, no doubt, mechanical dexterity in drawing, but no judgment of form and architectural proportion (Verhältnisse); as their attention is only directed to drawings without import (Gehalt), or to something acknowledged as beautiful, but which does not convey to them an idea of the beautiful and suitable (Zweckmässigen).

In order early to call forth the sense of form (Formensinn) in the young artist, I have drawn up this particular part, and endeavoured to take the ideas, by which a judgment of a perfect and beautiful form is to be acquired, from existing objects.

Although it is not possible to give all the forms which the architect is required to produce, yet the most essential forms of the art may be reduced to simple principles, and applied.

With this view I divide the plastic objects of art into the forms of necessity (Formenraum des Erfordnisses), and those of preservation (Formen der Erhaltung) from external and internal destruction; and endeavour to give the fundamental principles for forming a judgment on these two chief forms, when they are at the same time æsthetical, in their dependence on each other.

With respect to the numerous forms of necessity, where a distinction of form often becomes necessary, only through a slight difference in the use, or on account of the material, I have considered the form of our common drinking-vessels, which are almost daily before our eyes, as the most suitable for a model; as they furnish us with the best judgment of form, and come next in order to a multitude of beautiful and classical ancient urns, to the beauty and elegance of which the eye becomes readily habituated.

Drinking-vessels and urns are for the most part formed out of one piece of material, such as clay, glass, or metal; while, on the contrary, architectural forms must be constructed of various pieces artfully united, as in the wooden vessels (Gefässe) [figures of which will hereafter be given]; but this union of several or various materials does not alter the principles here

adduced for a judgment of forms; only, in the application of them, the technical knowledge of the construction of single materials is requisite, in order that, by the combination of various substances, the forms may be as harmonious and analogous to each other as is required in the elements of the individual substances in the vessels.

The ancient Indians and other nations, who formed their buildings out of the rocks, might be able to give them a form, without regard to the art of combining materials; yet that form could not be so rich and graceful as among the Greeks and Romans. Beauty by no means excludes simplicity; neither should well-directed richness be exchanged for overloading; and variety only increases our interest, when it is united in works of art as an organic whole, or serves as an appropriate ornament to it.

Thus, for example, the head of the Apollo Belvedere is beautiful of itself, and we should be satisfied with it, if we only possessed the head; yet the entire figure of the god is far more beautiful and perfect than a detached part of it, although that part may be perfect in itself.

I am well aware that besides these principles of form (Formenlehre), much might still be said on the plastic art (bildende Kunst); and that the theory of the beautiful, herein touched upon, is capable of still further developement: but it is not my intention here to form an æsthetical compendium, but to lead the clever young artist while studying, to more extensive reflection on the necessary judgment of forms in art, as we possess no elementary book of the doctrine of forms and æsthetics, so necessary to the rising artist; and, besides, the doctrine of form is indispensable in the study of architecture.

If Hogarth's work on beauty did not refer chiefly to the comic and grotesque, the artist might find in it much instruction in form and beauty; but, for this reason, it is unfit for use, and, in many respects, even dangerous to the young artist, because he might easily be misled by the ludicrous views therein set forth. Bouterwek, Eberhard, Fernow, Heydenreich, Kreutzer, Pölitz, Richter, Schreiber, Winkelmann, and other learned men, on the other hand, have written comprehensive and instructive æsthetical theorems on art, which embrace the philosophical contemplation of the beautiful in the widest sense of the word. These works furnish the artist with comprehensive æsthetical instruction, which I cannot give so circumstantially; I confine myself, therefore, to the views and opinions of forms, indispensable to the artist, which I shall hereafter explain further, as I proceed with my book, and show the various application in detail of the principles here brought forward. It must not be expected that in this treatise any mathematical recipe for the invention of

beautiful forms is to be found; because that is an effect of imagination and feeling; and plastic as well as oratorical forms cannot be created without natural gifts. My remarks on beauty, therefore, must chiefly guide the judgment in invention, and disclose to the rising architect a path and view into the illimitable province which he is entering upon.

As the poet must be born and not made, so it is with the architect (Plastiker) and other artists. Every one is not capable of making a good use of the best instruction, or even of forming an opinion on subjects of taste (Gegenständen des Gefühls).

## CHAP. I.

### NOTIONS AND IDEAS ON FORMS AND BEAUTY, PARTICULARLY IN THE PLASTIC ART.

1. FORM is a word applied to every thing that is surrounded and enclosed in space (im Raum), in surfaces with lines (Flächen), and in solid bodies with surfaces. Thus, every figure which is presented to the eye in one or other of these ways possesses form.

2. In the first case, such a representation is called pictorial (bildlich), and in the second plastic (plastisch).

3. In both cases, lines surround the contour; and the æsthetical intrinsic worth of its form is shown by them; and, *vice versa*, what is to be formed anew is regulated by the same principles, as far as such a production of art is to be carried out.

4. Although it is difficult to give a satisfactory definition of beauty, yet it may be said in general, that the beauty of a visible object consists in the outline which fills a certain space (räumlichen Umrissen), and that colour or the intrinsic value (Gehalt) of the material gives no beauty to the production, only that by them the beauty is more or less heightened by a casual charm, and the expression occasionally strengthened.

5. As the beauty of an object is known by the outline, it must be observed, that

i. Not all, but only noble, objects are capable of beauty; and that

ii. The outline must represent the object faithfully, and perfectly, in all its parts.

6. Beauty consequently consists in the perfect agreement of the form to the end in view; and that form is perfect when the object appears accomplished, so that we could not wish any thing added to, or removed from, the figure.

7. Accordingly, that figure is beautiful, in the outline of which a suitable consummation (Vollendung) appears. The suitableness itself will be determined by the notion (Begriff) of the figure.* Hence it appears that there must be different types of

* Kant, when he opposes the beautiful to the sublime, says that the beautiful must please without any interest; that beauty is the form of the suitable-

beauty for feminine and manly beauty; youth and age; the temple and the palace.

8. In true beauty the objective and subjective meet, or, rather, they are both one. When this unity is wanting, the beautiful is not recognised, or the ugly is considered beautiful. A work of art is only interesting when it engages our ideas and feelings.

9. That the harmony, or rather the agreement, of the lines with the purpose of the object is an essential condition of beauty, and that mere forms without reference to an object awaken no agreeable feeling in us, and are only like dead signs, may be perceived in every unmeaning line. Besides this, the beauty, and even the difference of beauty, from the individual suitableness of both, might be shown by comparing the form of Apollo with that of Hercules. These two statues, however different they may be in form, we consider beautiful; because they perfectly express the different notions of Apollo and Hercules, without our being able to form a higher idea of either. The same may be said of the statues of Venus, Juno, and Minerva, which embrace the highest ideal of feminine beauty, wisdom, and dignity of form, &c.

10. What has been here remarked on the plastic imitation of the human species, (the beauty of which is estimated by the innate suitableness, or according to the ideas of dignity, strength, grace, ornamentalness, &c., excited,) is applicable also to the imitation of other animated objects; as well as to plants, landscapes, or objects which supply the wants of man, such as furniture, buildings, &c.

11. As the labours of the painter and sculptor are directed to the study of nature, and as, to insure the beauty of their works, they must endeavour to catch and retain the *beau idéal*, or rather the maximum of perfection in form, of their objects from animate or inanimate nature; so the architect has much greater difficulty in discovering the beautiful, as he has no copy for his objects, and he has to compose his forms, partly from the manifold human necessities, and partly from ideas, as his inventive faculty produces and combines them.

In this respect, fine forms in architecture, and what is con-

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ness of an object, which can be discovered in it, without the representation of an end in view: that beautiful is what universally pleases. Accordingly he thus defines the beautiful: beautiful is that which pleases by its form, or that which by its form sets the imagination and understanding in a free, harmonious, and playful activity, united with pleasure. The beautiful in art (Kunstschöne), which Fernow represents in his *Roman Studies*, part i. sect. 3., may indeed be as much contained in his ambiguous words as a beautiful figure in a block of marble; but the sagacity of an Œdipus would be required to decipher the first; and for the development of the latter a Phidias would be necessary to remove what did not immediately belong to the figure.

nected with it, are much more difficult to invent, than in the other plastic arts (bildenden Künsten); because, when the objects have no reference to a previously known object, the form must be invented or created out of nothing.

12. Thus, there is a beauty of nature, and a beauty of art. To copy the beauty of nature cannot be called being an artist, in the highest sense of the word, as only a mechanical talent is required for it. The beautiful in art depends on an idea, and therefore the true artist must possess, together with the talent for technical execution, that genial power which revels freely in rich forms, and is capable of producing and animating them. It is by this that the merit of the artist and his productions is to be judged; and these cannot be properly estimated among those barren copyists of nature, which we find so many of our flower, portrait, and landscape painters, &c., to be. But the artist stands much higher in the scale, who, though a copyist of visible nature, is capable of seizing it with poetical feeling, and representing it in its more dignified sense; such, for example, as Raphael, Poussin, Claude Lorraine, &c.

13. Those who in art consider all objects indifferent, and who think it unimportant whether a work of art only pleases the eye, or also interests the mind, must necessarily award the highest value to mechanical or technical finish, and prefer the Flemish (niederländische) to the Italian school. On the contrary, a school has arisen in our times in which the idea (die Idee) only is valued, and the finishing of form (Vollendung der Form) is considered rather blamable than praiseworthy. In this, as in every other case, the error lies in extremes.

14. That an object may be agreeable and even perfect in itself without being beautiful, we may convince ourselves by a comparison of the Last Supper of Lionardo da Vinci, with a drinking scene of Teniers; as the latter, notwithstanding its excellent execution which charms the eye, at most only deserves admiration for mechanical skill and industry which it displays, while the former really exalts us, and absolves us from every vulgar feeling. In the same manner, for example, we do not consider a toad beautiful, although it is formed by nature perfect as a toad; and the same may be said of other ill-shaped animals, which will always offend the eye and feelings of every one, unless it be those of a naturalist, to whom the whole circle of nature is interesting.

15. As these examples serve for the pictorial (bildliche) representation of animated nature, so in architecture the temple is to be distinguished from the pigsty; and although both may be perfectly and suitably built, yet the pigsty, from its nature, is not capable of any beauty, and it would be even absurd and highly reprehensible if it were beautiful, as may be said of all

other farm buildings. A temple, on the contrary, which is only to awaken noble and sublime feelings, must be so ordered as to call them forth by its majestic forms.

16. Besides the difficulty of the task of inventing a suitable form for a given object, the lines which the architect has at his command are limited essentially to two; viz. the straight (gerade), *fig.* 128.; and the circular (Zirkellinie), *fig.* 129.

17. From the straight and circular lines an infinite number of lines may, indeed, be constructed and formed; but in the whole these can again be reduced to three combinations; viz.

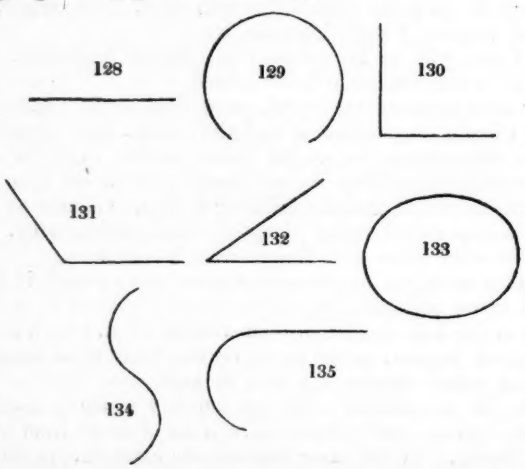
i. When the straight line is joined to another, either

*a.* At a right angle (rechtwinklich), *fig.* 130.;

*b.* At an obtuse angle (stumpfwinklich), *fig.* 131.;

*c.* At an acute angle (spitzwinklich), *fig.* 132:

ii. Parts of circles towards each other form ellipsis-like figures; and, running from each other, cornice-like (Karniess-artig) figures. (*figs.* 133. and 134.)




iii. When united lines (such as straight and circular lines) run into each other, as in *fig.* 135.

With these limited lines the architect has to form his plastic works, and to apply them to the best advantage, according as the object requires.

18. If we allow that beauty lies in form alone, the material is not taken into consideration; but, as the latter should be in harmonious unison with the perfection of the object, a disagreeable feeling, prejudicial to the beautiful, is awakened in us, when we see the contour (Umrisse) struggling with the nature of the material. Thus, for example, the form of a round wooden ball,

when the fibres of the wood are seen intersected by the form of the body, causes a disagreeable feeling, which we do not perceive in a ball of marble, glass, &c. We see from this, that the nature of the material, by which the former becomes visible, offends; and that, therefore, almost every material possesses a particular fitness, or peculiar capacity, for this or that form.

19. From the old Grecian and Roman orders, it will be perceived that the beauty of the pillars is to be looked for only in the just proportion of the individual parts, without regard to the material; but if we propose a shaft of stone, wood, or iron, of the same thickness and height as those of the ancient Greek or Roman orders, to support an equal weight, it is contrary to common sense to make the iron pillar as thick as the wooden one, and that as thick as the one of stone, &c.

20. When these different pillars are painted or enveloped with the same colour, and by this means are caused to appear of the same material to the eye, they no longer offend; because the material is concealed from our view by the colouring, and our eye is directed only to the pure proportions of form; as in a drawing of mere outlines, when the material of the object is not taken into consideration.

21. Although colours are not essential to beauty, and it is often indifferent what coloured material we make use of in our works, yet they often contribute greatly to the charm of the object, when they are so chosen as either to enrich it, or to give it the effect of light and shade. Thus, for example:

i. White marble, gypsum, &c., are the best materials for statues, bas-reliefs, &c.: because these masses show the form of the object in light and shade most clearly, and no confusion is caused by dark colours.

ii. Metal, porcelain, &c., are best adapted for our eating and drinking vessels; because these materials, from their fineness and shining property, show the least impurity.

iii. Crystal and glass, from their purity and transparency, are the best materials for drinking and other vessels, where the colour or the form of the objects contained within often produces a greater charm from the transparency of the glass, &c.

22. Plastic objects of art, such as the human figure, animals, and fruit, when coloured like nature, often cause horror, or even disgust, according to the degree of illusion. When the same objects are of a one-coloured mass or colour, we have not this feeling; because the production does not appear through momentary illusion as the work of nature, without being able to prove itself such. Art agreeably deceives us, without coarsely cheating us; she does not sham a real object in her productions, but makes it visible to us, as an ideal object. Clothed wax figures, or wax, wood, or stone, fruits coloured, may do very

well for play or amusement, but can never excite a high degree of pleasure (æsthetisches Wohlgefallen).

23. In this manner colours may create disgust, or even horror, according to the object on which they appear, or if they awaken a disagreeable train of ideas. Thus, for example, the brown colour of Malaga becomes offensive, when we think of tincture of rhubarb; and the most beautiful glow of sunset may fill us with terror, if we have shortly before seen this colour in a conflagration, in which we or others were in danger. Thus, even the colour of the objects must be in unison with all our sensitive ideas (sinnlichen Begriffen), that we may not be disturbed by it in the contemplation of beauty, or have our attention called off to a secondary idea.

24. The case is very different with pictorial representations on surfaces, which, as it were, reflect objects as in a glass. As these representations, or pictures, on surfaces are only seen from one point of view, and have not space on all sides like sculptures, colours are here a means of optical illusion, and tend to give to the whole surface an apparent depth, and to bring objects forward, or remove them to a distance. They also enliven objects; and yet they can never so far deceive us, as to make us forget the form and the presence of art, or try to seize the object, or take it for real. Apelles is said to have painted cherries so naturally in a picture, that the sparrows flew to them; but, as Göthe justly remarks, the illusion was no proof that the fruit was extraordinarily well painted, but rather shows that the sparrows were real sparrows, and had no notions of art and painting.

### OF PROPORTIONS (VERHÄLTNISSEN) IN THE PLASTIC ART.

25. We must also remark that single mathematical forms are, indeed, perfect, but cannot be called beautiful, because they have not sufficient richness in their outline, and are without importance, such as cubical bodies, spheres, cylinders, &c. These forms can therefore only interest us by ornaments, and other forms, which they may have on their surface. On the contrary, it is repugnant to the laws of the beauty of the object, to overload it, or to put more on it than is requisite to make it complete. Such objects are, therefore, most beautiful when seen in half light or by moonlight; because in the faint light the minute parts remain concealed from the eye, and only the principal parts are prominent. Many of our Gothic buildings are of this description.

26. As beauty of form presupposes a consummation (Vollendung) suitable to the object, with due regard to the material and the outward destination; and as a regularly formed mathematical figure (as will be further shown) cannot be called beautiful on account of its uniformity, but is only perfect, since it

wants, also, exalted signification (ästhetische Bedeutsamkeit), and points to no other intellectual idea of form, but only to itself; so, on the other hand, richness of form (Formenreichhaltigkeit), without which neither the beautiful nor the agreeable and suitable in life can exist, requires in itself, —

i. Proportion and relations (Verhältnisse) of the sizes (der Grössen);

ii. Symmetry; and,

iii. Eurhythmy, or agreement (Wohlgereimtheit), of single parts and lines with each other.

27. Relation (Verhältniss), or the proportion of individual parts to the whole, is, in the plastic art, what time, or the proportion of the individual tones of the melody, is in music. Considered singly, the whole scale of tones, or the above-mentioned lines, without variation in size (Abwechselung von Grössen), have to us no particular value as art; but if the lines appear as various relations of quantity (Verhältniss Grössen) directed to an end, which the plastic art requires for the visible form, and music for the melody, and which, perhaps, vary in proportion to each other, as 1 to 2, 1 to 3, 3 to 4, &c., and thus form transitions from straight lines to curved ones, according to various directions and angles, then they are for forms what cadences or transitions from one strain to another are in music.

28. In the plastic art, it is necessary that the eight given forms of straight, curved, and united lines should be understood and applied as readily in a suitable manner to every object, as the seven principal tones in music are to melodies; and measure of form must be communicated to the lines, as ingenious and attractive as is communicated to the tones by the measure of time.*

29. In music, the unity of measure, or the division of time of the piece, is mostly in the proportion of 1 to 2, 1 to 3, or 1 to 4 (common time); and the smaller portions of time are always halved from $\frac{1}{4}$ to $\frac{1}{8}$, $\frac{1}{16}$, $\frac{1}{32}$, $\frac{1}{64}$; and, according to this, the passing time of the whole, by means of the measure into which the individual quantities of the tones (Tongrössen) of the melody are divided into time, is measured. In the plastic art, in which the sizes (Grössen) do not pass over, but remain, and are seen together, it may be supposed that such a proportion of

* From the similarity of measure which architecture has in common with music, Professor Görres calls architecture a frozen music (gefrorene Musik); and other learned men have endeavoured to set down music in feet, inches, lines, &c. But architecture which depends on space, and music which depends on time, cannot be treated throughout on the same principles; otherwise a good architect must be a good musician, and, *vice versa*, a good musician a good architect, which is not the case. They are related to each other with respect to effect, but very different as organic structures (Gebilde).

unity to the whole does not exist; but, when we call to our aid, as a measure of form for the plastic art, the proportions of the ancient Greeks and Romans, who attained the highest state of perfection in art, we shall find that they (for example, in the shafts of their pillars) took the proportion of their thickness, or of individual parts of them (such as the pedestal, capital, &c.), at most, in the proportion of as 1 to 10 or 12, and only in a few cases have admitted smaller parts; because the smaller proportions to the whole, when that is not again divided into principal parts, do not present an easy and clear view. Our numbers may serve for an example, if, to begin, we take the units from 1 to 10, and then, for the other parts, from twice 10 (20), three times 10 (30), &c.; or, take for the first class units, for the second tens, for the third hundreds, &c.

30. We cannot, indeed, perceive with our eyes any very small departure from quantity (Grössen), as in the proportion of numbers to each other; but a practised eye very easily distinguishes in two objects a well-chosen proportion, if one size (Grössen) is not too much contained in the other; particularly if several divisions direct the eye to the proportion of the whole: in pillars, for example, which are divided into the pedestal (Fuss), the shaft (Stamm), and the capital (Capital).

31. In Gothic architecture, in which the individual parts, such as the shafts of the pillars, are often of a height of as 1 to 50, 1 to 100, &c., the proportions of single parts are not perceptible; and in such buildings the tangible proportions are only to be found in the principal masses. They create in us, therefore, only astonishment, but not that agreeable sense of the beautiful which we feel in the Grecian and Roman architecture, when the individual parts, as well as the whole, are in perceptible proportion to each other.

In common life, we like to compare objects with the size of the human frame; because it is most familiar to us, and we usually like to believe all objects created for man. From this cause, it appears that the span, foot, ell, fathom, &c., have been adopted as measures in manufactures and trade.

### ON SYMMETRY AND EURHYTHMY.

32. Symmetry and eurhythmy, as the arrangement of form (Formenordnung), and agreement (Wohlgereimtheit) of several parts to each other, are two essential conditions of the beautiful, extracted from creative nature. So, for example, man, and even the leaf of a tree, however manifold its form may be, are symmetrical; and, in the case of the tree, however manifold the spread of its branches and the mass of its foliage may be on all sides, a eurhythmy of parts is apparent; and this rich disposition

elevates the mind and heart, and, in the plastic art, may find a suitable application.

33. A symmetrical arrangement, such as the equiformity (Gleichförmigkeit) of single parts to each other, is required in the exterior and interior views of objects in a

i. Vertical,

ii. Inclined, and

iii. Horizontal, direction.

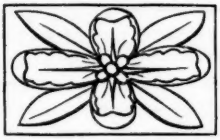
34. For the preservation of symmetry in vertical or inclined surfaces, the objects standing one over the other, as in the leaves of a tree (*fig.* 136.), may be alternate and various, if the horizontal height of both sides opposed to each other be equal.

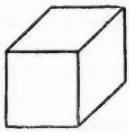
136

137

35. As a symmetrical representation for a surface, the form of plants or flowers may be used, as they appear to the eye contemplated from above. (*figs.* 137. and 138.) The individual parts, in this instance, either spread equally on all four sides, like *fig.* 137.; or equally towards the two opposite sides, like *fig.* 138.

138





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36. As a representation of an exterior or interior symmetrical body (Körper Symmetrie), a cube (Würfel) (*fig.* 139.), which is symmetrical, may be used for all forms, when

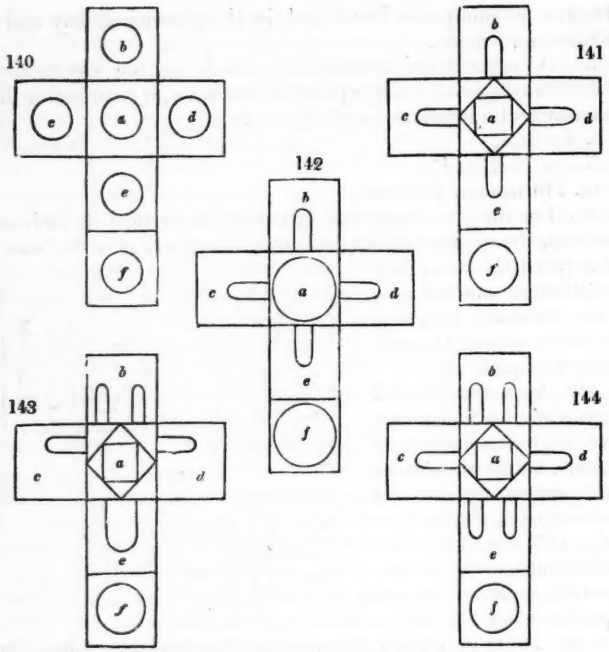
i. All the six sides are of an equal form, as is seen in the series of surfaces of cubes, *fig.* 140.; *

ii. When the surfaces of the floor below, and the ceiling above, are formed differently from those of the four perpendicular sides, as in *fig.* 142.; or,

iii. When the surface of the floor is different from that of the ceiling, and those of the four corresponding sides (*fig.* 141.);

iv. When the surfaces of the floor and ceiling are arranged according to a plan similar to the foregoing (Angaben), but so as to imitate the symmetry of the human figure; having two equal sides opposite each other, the third as the front, and the fourth as the back (*fig.* 143.); and, lastly,

* If the *figs.* from 140. to 144. are considered as each forming a series of faces of the cube *fig.* 139.; the square surface *a* may be the floor of a room; the surfaces *b*, *c*, *d*, and *e*, the side walls; and the surface *f* the ceiling (Decke); and the objects drawn on these surfaces the ornaments of doors, windows, ceilings, &c.




v. When the two sides opposite to each other are the same, and the third is made like the fourth. (*fig.* 144.)

In this, as in the foregoing case, the whole is strictly symmetrical, although one side may be unsymmetrical of itself, as the sides *c d*, in *fig.* 143.

37. Eurhythmy, or harmony, as the suitableness (das Schickliche) or agreement of individual parts among themselves, is requisite in every work of art; because, otherwise, the equilibrium (Gleichgewicht), or, rather, the suitableness (das Schickliche), is injured, and the eye is offended.

Thus, for example, unskilfully chosen materials, which on one hand display riches, on the other poverty; or a range of columns in a hall, placed too far apart; or a small picture on a wall, where it is out of proportion with the rest of the surface of the wall, and, perhaps, placed at the very end of it, offend. If the picture is in the middle, when in a symmetrical position, it divides the wall equally; or, if there are several small pictures on it, the disproportion of size no longer disturbs us, as they appear now in a better eurhythmical relation with the surface of the wall, from being several parts, or by indicating the middle.

Thus, for example, the leaf drawn on the rectangular surface, shown in *fig.* 136., or a similar drawing, does not fill the space eurhythmically, although the leaf is symmetrical in itself.

In like manner, a round rosette in a square ceiling is not eurhythmical with the form; because the round form is not parallel with the square, and, therefore, the two forms are heterogeneous to each other.

38. When these heterogeneous forms are so presented before the artist, that, as it often happens, he cannot avoid them, such as the square plinth (Platte), or abacus, on the round shaft * (Säulenstamm), and other similar objects, he must endeavour to unite these two forms in an ingenious manner, and so as to please the eye, that the eurhythmical harmony may be as much as possible restored, and the want of agreement (Ungereimtheit) obviated and concealed as much as possible.

39. According to these principles and views, which are all more or less requisite for a proper judgment of forms and the beautiful, I have given representations of the various ancient and modern drinking-vessels; and have added a selection of beautiful and classical antique urns, in order, by thus placing them together, to be able to estimate their æsthetical intrinsic value of form, in so far as it is suitable for a general model for judging of form in the compass of necessity (Bedürfnissraum), and which may be applied to the other requisites of art (Kunstbedürfnisse).

40. In order to represent forms for the inventing of objects, according to the manifold necessities which may occur, in the simplest manner, they may be entirely reduced, for the plastic art, to those coming within

*a.* The compass of necessity (Raum des Erfordernisses);

*b.* The compass or form of preservation (Erhaltung), in so far as it serves for the protection or strength of the object, and can receive the form,

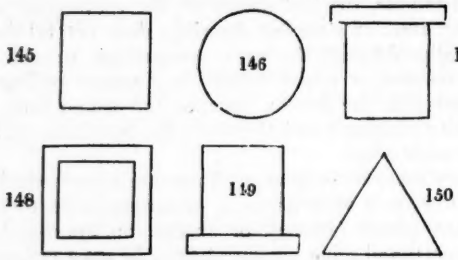
i. For the compass of necessity (Bedürfnissraum), as in *figs.* 145, 146., of square or circular enclosed roofs;

ii. For the form of protection, a cover (Deckel), or frame (Rahmen), as in *figs.* 147, 148.; or,

iii. For strength or solidity; for which purpose either a pyramidal form, or supporter (Untersatz), may be introduced for enlarging and strengthening the basis, as in *figs.* 149, 150.

41. From the pictorial representations here given, all possible forms for the many and various necessities of human life may be taken; and objects, on the whole, refer, —

* In the Ionic and Corinthian capitals, the transition from the heterogeneous form of the round shaft to the square plinth above, by cochleæ (Schnecken) and foliage, is rendered not striking, but very ingeniously concealed from the eye.




*a.* To the preservation (Erhaltung);
*b.* To the improvement (Veredlung); and,
*c.* To the splendour or luxury of man.

A number of forms might be given in explanation of them; but, as the perfect and the beautiful, in all objects, may be referred to a common idea, and may be taken from one object, I have selected here, as a pictorial elucidation, the forms of our usual drinking-vessels from the immeasurable cycle of plastic art, and endeavoured to deduce their forms from their intended use.

As the compass of necessity (Bedürfnissraum) requires, for the most part, a greater extension of forms for the preservation, as well as for the protection and strength, of the productions of art, which cannot be shown in detail in these vessels, I shall say what is necessary on this subject after the explanation of the forms.

42. When we consider the forms of drinking-vessels with this intention, we must not forget that the liquor is either to be kept in them, or distributed from larger to smaller ones, or to be drunk out of them; and that, to be fit for use, and conformable to the end in view, the space (Raum), for the quantity and quality, must agree with the material of which the vessel consists, as well as with its use and purpose.

43. As a vessel of this kind, besides its suitableness, must also have a subjective worth, and, therefore, must be objectively perfect and beautiful; so, according to the above conditions, the beauty of the form is to be made in accordance with durability and fitness with respect to the destination.

44. For the proper form of the drinking-vessels here spoken of, we must take into consideration, —

i. The quantity and quality of the liquor;
ii. The material of which the vessels are to be made;
iii. Their partial or constant use;
iv. Their solidity or durability;
v. Their convenience in use; and,
vi. The beauty and agreeableness of their forms.

45. ad i. All liquors may be divided into, —

*a.* Spirituous, such as wine, liqueurs, &c.;

*b.* Weak watery liquids, such as beer, milk, water, &c.; and,

*c.* Cold and warm liquids.

Ad ii. The material for the vessels may be of wood, stone, metal, leather, paper, glass, or burned earth, &c.

46. ad iii. When we consider drinking-vessels according to their use, there are, in reality, but three sorts; in which, —

*a.* The fluid is preserved in large quantities, such as casks, large ancient stone jars, &c.; or,

*b.* Small vessels, such as bottles, pitchers, &c.; into which a certain quantity is deposited for drinking; and,

*c.* Drinking-vessels, such as cups, drinking-glasses, &c., for one or more persons.

47. ad iv. Although we can acquire a sufficient solidity for vessels by a mixture of various materials, or by a greater mass of them, yet it chiefly depends on art to make them in the most economical manner (auf das sparsamste), and yet suited to the purpose, of the most simple materials. We must therefore first take into consideration, —

*a.* The natural properties of the material;

*b.* A well-chosen form, analogous to the fluid, as well as to the material.

48. ad v. The vessels are called convenient, when

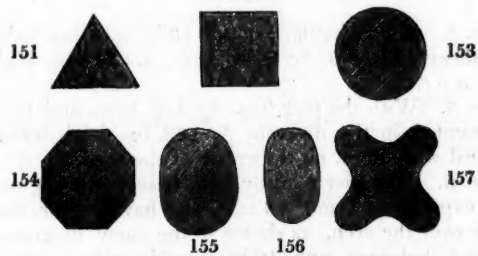
*a.* The large vessels, such as casks, stone jars, &c., are easily filled and emptied, and in all respects adapted to preserve liquids;

*b.* When the smaller vessels are equally adapted for preservation, carrying, and distributing; and when

*c.* The drinking-vessels, such as glasses, cups, cans, &c., can be easily laid hold of, drunk out of, and set down, &c.

49. ad vi. Drinking-vessels may be, in their ground plans, 3- 4- 6- or many-cornered, round or oval (like those in *figs.* 151. to157.); and, in their upper forms, may be straight, convex, con-

152




cave, or of composite forms. But, as beauty presupposes a not general use, and proceeds from a rich and manifold alternation of outlines in indivisible unity; and, as single mathematical

forms possess no beauty, but are to be considered as single words in oratory, and only acquire interest and importance when united with other lines and forms; so must composite forms correspond as much as possible, in every respect, with the above requisites and conditions.

50. If we take into consideration what has been said, which is more or less applicable to every vessel, it will appear that the form, in every respect, is suitable and beautiful, only when the object is capable of a beautiful form, and is not to be applied to a low and common purpose. According to this view, not only every destination of the liquid (as we have already mentioned) requires a particular form of vessel, but almost every liquor and every material; because wood is of a different nature from stone, glass, &c.; and, consequently, the constituent parts of each material demand a form analogous to them.

(*To be continued.*)

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ART. III. *Experiments made for the Purpose of ascertaining and exhibiting the necessary Strength of Piers to be employed at the Angles of Buildings, carrying Arches over Doors and Windows.* By WILLIAM BLAND.

*EXPERIMENT* 1. A semicircular arch of 10 in. span just balances on a pier measuring 2 in. by 4 in. for the base, and 7 in. high. See fig. 148. in Vol. III.

*Exper.* 2. The same arch, on a pier 4 in. by 4 in. base, and 7 in. high, balances with 5 lb. placed on the crown of the arch.

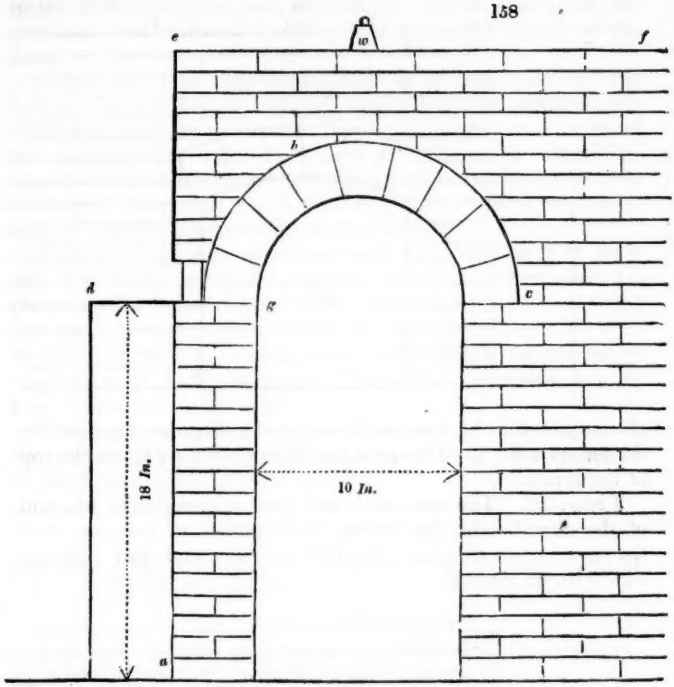
*Exper.* 3. The same arch, on a pier 2 in. by 4 in. base, as in experiment No. 1., and 7 in. high, having three courses of masonry above the crown of the arch, balances with 5 lb. placed on the masonry; thus proving that the strength of the pier in this third experiment is rendered equal to the pier in the second experiment, by the three courses of masonry above the arch.

*Exper.* 4. A semicircular arch of 10 in. span just balances on a pier measuring 4 in. by 4 in. base, and 18 in. high. See *fig.* 158. *a b c.*

*Exper.* 5. With the pier 9 in. by 4 in. base, and 18 in. high, as represented in the diagram *fig.* 158. by the letters *a d b c*, it balanced with 12 lb. on the crown of the arch.

*Exper.* 6. The pier 4 in. by 4 in. base, the same as in the fourth experiment, and 18 in. high, having four courses of masonry over the arch, as shown in the same diagram by the letters *a e f*, balances with 12 lb. placed on the masonry above the crown of the arch. Here, again, the pier *a b* is rendered equal in strength to the double pier *a d*, against the outward

158




thrust of the arch *g b c*, by the masonry *g e f c*, upon and above the arch.

*Exper.* 7. An arch, the segment of a circle, of 12 in. radius, and 10 in. span, just balances on a pier having 4 in. by 4 in. for its base, and 9 in. high. See diagram *fig.* 159. *a b c.*

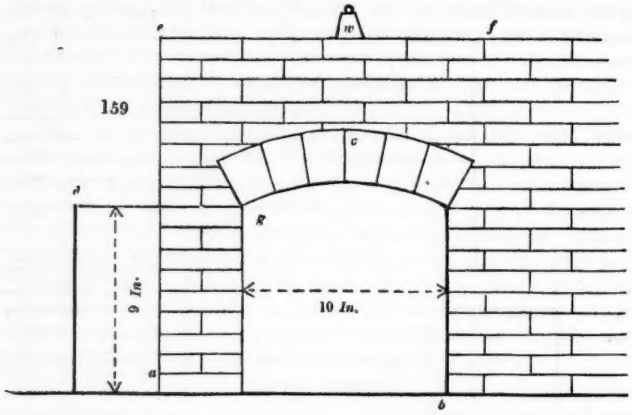
*Exper.* 8. The same arch as the preceding, placed on a pier having a base of 8 in. by 4 in., and 9 in. high, just balances with 6 lb. placed on the crown. See diagram *fig.* 159. *a d c b.*

*Exper.* 9. The segment arch, as before, and placed on a pier having 4 in. by 4 in. for its base, and 9 in. high, but with four courses of masonry over the crown of the arch, just balances with 6 lb. on the top. (See diagram *fig.* 159. *a e f b.*) These four courses of masonry, again, render the pier *a g* of equal strength to the double pier *a d g.*

*Exper.* 10. The same segment of arch and span as the preceding just balances on a pier 2 in. by 4 in. for the base, and 3 in. high. See diagram *fig.* 160. *a c b.*

*Exper.* 11. The same as experiment 10., but with the base

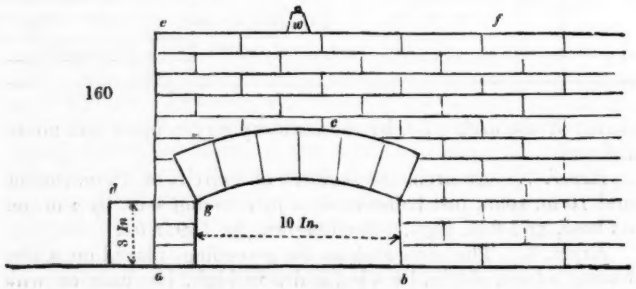
159




of the pier 4 in. by 4 in., as shown in the diagram *fig.* 160., by the letters *a d c b*. This arch just balances with 2 lb. on the top of the crown.

*Exper.* 12. The same arch and pier as experiment 10., and of the same height, but having four courses of masonry over the crown (see diagram *fig.* 160. *a e f b*); and just balances with 2 lb. on the top.

160




*Exper.* 13. The same segment arch, with a pier 2 in. by 4 in. for its base, but 18 in. high. This arch and pier would not stand even with eight courses of masonry over the crown; the pier being too slight, yielding out immediately, and letting down both arch and masonry.

*Exper.* 14. The same segment of arch, with the base of the pier 4 in. by 4 in., and 18 in. high; having, as in the preceding experiment, eight courses of masonry over the crown of the arch: but this would not stand, the pier yielding out as before, and letting down both the arch and the incumbent masonry.

*Exper.* 15. The same arch again, but with 8 in. by 4 in.

or the base of the pier, and 18 in. high. Thus constructed, the pier and arch balanced firmly with 3 lb. on the crown of the arch.

*Exper.* 16. The same construction as in experiment 15., but having eight courses of masonry above the crown of the arch. With this masonry so placed, the pier and arch stood without the least yielding under the weight of 12 lb. on the top. The reason of this strength proved, upon measurement, to be, that a straight line could be drawn from the weight to the outer base of the pier, quite within all the masonry.

*Exper.* 17. A pier, or rather wall, 2 in. thick by 16 in. long, and 3 in. high, having the segment arch, as in experiment 10., placed on the top, balanced rather more firmly than it did with that pier; thus proving a portion of strength, though small, to be gained by placing an arch upon a wall where a pier of greater depth cannot be constructed. See similar results, as given in figs. 67. and 68. in Vol. III.

The diagrams to which these experiments are referred are on the before-employed scale of the eighth of an inch to an inch; and of the bricks, eight weigh a pound.

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ART. IV. *Hints on Construction: addressed to Architectural Students.* By GEORGE GODWIN, Jun., F.S.A. and M.I.A.

No. 4. BRICKS AND BRICKWORK.

A STUDENT, at this time, has no excuse for an ignorance of the leading principles of any of the sciences. Fifty years ago, a man who hoped to attain the extent of knowledge here implied must have toiled earnestly and unceasingly, wading through the theories and contradictions of centuries, with which truth was overlapped; and gaining thence, if he were sufficiently persevering, some few of its illuminating rays to guide him in his enquiries. It was not to be hoped, then, that individuals, who had specific occupations to employ them, could do more than acquire such information as was actually necessary for the practice of their trade or profession. But now, when men are at the corner of every street, if we may so speak, waiting to deliver verbally, in an hour, the results of the investigations of others during years, to be received by hundreds at the same time, passively, without trouble; when powerful minds are engaged on all sides applying the hydraulic press to accumulated bales of knowledge (arranging, simplifying, condensing), and spreading the proceeds abroad, in all shapes and in every direction; to acquire this general notion of all the sciences is not the labour of a life, but the recreation of leisure hours. To possess this knowledge is, therefore, no longer a distinction, but to be without it is a disgrace.

We do not say, stop here: indeed, you *cannot*, if you desire to maintain your position in society, and pursue your profession successfully and honourably; and *would* not, even were you able; for the pursuit is of itself so alluring, and the gain so certain and so glorious, that, enter once upon the chase, and there will be no need of other inducement to continue it. Our only care is, therefore, that you should early feel the importance of general science, and disregard no opportunities for the attainment of it.

That it is important, who will doubt? The architect is called upon to deal with matter in every shape: surely, he should be acquainted with its properties, and the laws by which it is regulated? In other words, he should be conversant with physics. The decomposition of the materials employed in carrying out his designs would frustrate all his hopes. He must know of what they consist, and the mutual affinities of the elements composing each, if he would, in the first place, choose wisely, or, having chosen, apply a preventive or a remedy for an arising evil. This acquaintance he cannot possibly attain without some knowledge of chemistry, any more than he could economically ventilate or warm an edifice, without comprehending the nature of caloric; or construct a building, to answer some desired acoustical purpose, without understanding the science of sound. Anything more, however, on this head might, perhaps, be deemed supererogatory; nor, indeed, should we have ventured, in this place, even on the preceding remarks, had we not been led to them by reflecting on the numerous ways in which scientific knowledge may be advantageously brought to bear, as it may be in all other branches of construction, on the fabrication of bricks and the erection of brick buildings; and on the degree of scientific knowledge which a man must possess, who would explain satisfactorily every phenomenon to be observed in these respects, suggest with certainty remedies for known defects, and predicate increased excellence from the employment of new modes.

A brick, we know, consists chiefly of pure clay and flint in the shape of sand, mixed with water; in other words, of alumina and silica, the latter the basis of glass; each of them an oxide of a metal (or compound of a metal and oxygen); the former consisting, as we learn, of ten parts of aluminum (the metal) and eight of oxygen, the latter of eight of silicium and eight of oxygen. When the two, constituting ordinary brick earth, are mixed together with water, they form a tough, tenacious, and plastic mass; but if it be heated, if the water by which the admixture was effected be driven off, it loses its plasticity, never to be again acquired, and becomes a solid substance, a silicate of alumina, strong and endurable in proportion as the admixture of the two components is complete, and the burning sufficient.

To show the value of properly kneading the earth, and bringing its particles into close connexion, it may be sufficient to say, that, by the bestowal of additional labour in this respect, bricks may be made, capable of resisting twice the amount of pressure which would destroy others prepared less carefully, of similar earth. As regards the effect of perfect burning, and entirely driving off the water, it is but necessary to examine a brick clamp when opened, and note the difference observable between the bricks where the fire has exerted its due influence, and those where it has not done so, in order to comprehend its importance. Where both these points have been attended to, the brick is usually of a bright clear colour; has a metallic sound when struck; and, if it be broken, does not crumble to powder, but presents a sharp ragged fracture. Those bricks which have not received the full action of the fire will not fulfil these conditions, and form what are called *place*-bricks: they will not resist the weather for any length of time; are crushed by a trifling superincumbent weight, and, consequently, should never be used where durability is regarded. The terms place-bricks and stock-bricks are merely disguises; they are but other words for *bad* bricks and *better* bricks: and one might reasonably suppose that no person would knowingly use bad materials, to effect a trifling temporary saving, when better might be obtained; and, therefore, that place-bricks would never be used: unfortunately, however, the reverse is too frequently the case.

If the clay contains too great a proportion of alumina, the bricks contract greatly by burning, and are liable to crack in the operation; and, if of silica, the bricks will be very brittle. In theory, we may say that bricks which are found to be less than those of ordinary size are, other things being equal, of imperfect composition. For practical purposes, this may, or may not, be worthy of notice; but there is a real evil attending the use of small bricks, which certainly should be mentioned; namely, that as, in a given amount of work constructed with them, there will necessarily be a greater number of mortar joints than in the same quantity of walling for which large bricks are employed, it will settle down more, and be, at all events for a time, less stable than in the other case. The heavier a brick is when dry (and this, in a great degree, is regulated by the amount of labour bestowed on the kneading of the materials), the better it is, the more solid, the more impervious to water.

Silica and alumina, when mixed, do not melt on being exposed to the action of heat, unless there are other substances present, such as lime, for example, in which case fusion is easily effected, and a vitrified mass results. The glazing sometimes given to the surface of bricks, for various purposes, depends on the vitrifiability of silica when mixed with certain substances.

The ordinary mode adopted is, to throw upon the bricks, when heated, common salt, which we may term a muriate of soda: this is decomposed, and the soda, uniting with the clay, induces fusion of the surface. Glass, we know, is nothing more than silica and soda fused by heat; therefore, in fact, by this operation the bricks are *glassed* over.

After what we have said, it is hardly necessary to remark that bricks made of sand and clay, containing any portion of lime or other flux, may not safely be used in situations exposed to violent heat, inasmuch as they would readily fuse. Fire-bricks specially so termed consist, for the most part, of pure clay, mixed with a certain quantity of old fire-bricks or other burnt clay reduced to powder, which fulfils the office of sand, but is less liable to fuse if accidentally brought into contact with ordinary fluxes.

The colour of bricks, although so various as it is, depends chiefly on the oxide of iron, which all native clay contains; the effect being modified by the substances with which it is combined, or circumstances of which we are ignorant. It is the same with the natural gems, or jewels (many of which consist, too, of the like materials as brick, namely, silica and alumina); for these, although for the most part quite different from each other, owe their colour to the presence of oxide of iron; as, for example, the lazulite, which is blue; and the obsidian, which is black; the yellow topaz, and the red garnet.

Concerning the processes of brick-making, although by no means beneath the attention of the architect, we shall say nothing other than to advise the student to inspect them for himself, in some of the numerous brick-fields to be found in the immediate neighbourhood; nor shall we here enter upon the history of bricks, which should probably commence at a time when the first man, Adam, was alive, and would include mention of nearly every known country in the world. England is especially dependent on brick as a building material; and there are numerous excellent examples remaining of brickwork executed many years ago, to show how well it may be performed. We may notice several houses in Lincoln's Inn Fields, and No. 43. in St. Martin's Lane, which display, as indeed do many others even in a greater degree, ornamented pilasters and entablatures formed in the same material with great nicety. At this time, however, in consequence, among other things, of inattention on the part of architects, the system of competition pursued, and the general use of cement as an exterior facing (which naturally induces the men to do their work carelessly, knowing it will be covered, and engenders bad habits), good brickwork is seen but seldom; and it would now, perhaps, be a matter of difficulty, to find a dozen workmen in London capable at once of imitating some

existing specimens. We say at once, because we are perfectly satisfied that there could not be a demand for any amount or sort of skill which England could not supply; and that, if such work were required, and were properly paid for, men would speedily arise equal to the task. We propose to consider some of the various modes of executing common brickwork, and afterwards describe certain supposed improvements in the form and use of brick.

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ART. V. *Notes on Modern Architecture.* By AMICUS.

No. 5.

IF greatness of dimensions constitutes beauty of form, the entrance to the Birmingham Railway, in Euston Square, possesses this quality. When we stand at the foot of one of the columns, there appears a certain degree of vastness, which astonishes and overawes us: but, seen from a distance, this is not the case, for the whole effect is then poor and meagre. A mere screen of columns, without much depth, is almost sure to produce a poor effect, for the want of a background, which a building of greater depth gives. This building may be called a screen of double Doric columns in antis, surmounted with a triglyphed entablature and pediment. On each side are two plain square buildings (offices, I suppose), with coupled pilasters at the angles; and between these buildings are elaborately ornamented gates. On the apex of the pediment of the centre is an acroterium; and the cymatia of the sides are ornamented with lions' heads, surmounted with antefixia. The roof is covered with stone, in imitation of the Greek temples: the columns are about 50 ft. high. Such is the colossean entrance to the Birmingham Railway. The stone of which it is erected is Yorkshire Bramley Fall. In turning over the Fourth Volume of your Magazine, in p. 439., I find it stated by your correspondent Eder, that "advertisements were put forth in the daily papers for a [design for a] building connected with a railway; but, after five weeks had elapsed, circulars were sent to the competing architects, to say they need trouble themselves no farther, as it had been resolved to give the work to Mr. Hardwick." I presume the Birmingham Railway is here alluded to. This gross injustice and insult requires no comment: it is on a par with the usual deliberations of committees who have to judge of architecture. But let us now see what great wonder has been produced, which induced the committee at once to adopt the design, without competition. Is there any great effort of genius? is there grand and novel conception, combined with fitness, to recommend this single design, without taking the advantage of

a variety to select from? If this had been the case, there would be less reason for complaint: but what is the result of this sapient decision? Look, ye aspiring architects, look at the great work which an enlightened committee conceived could not be surpassed in dignity, grandeur, or originality, although a chance had been given for talent yet unheard of! But talent they did not ask for; they only required a building connected with a railway. The veriest tyro could have produced the same design which now rears its mighty head above the surrounding bricks and mortar. The committee asked for a design; and in comes the architect, with columns 50 ft. high. "Ah!" say the committee, "magnificent idea! Columns 50 ft. high! there is nothing of the kind in London! Talk not to us of fine conception, original genius, harmonious grouping, fitness of purpose, or any such stuff: we shall surpass every thing." And at once are all complaints settled by the gigantic columns. But, good gentlemen, we appeal to you as intellectual beings, as persons qualified to judge of the merits of the case: is this building every thing you can wish? is it every thing that can be wished for by architects? is it the *ne plus ultra* of design? I think I hear you say, "Not exactly." First, the cost is enormous for a mere screen: secondly, the colonnade, and the offices immediately behind it, are of such mean design and material, that it appears as if a paltry economy had just stepped past the lavish expenditure, when too late, to retrieve a broken fortune by retrenchment: and, thirdly, there is very little fitness in the design; for, if any contrivance of modern engineering should supersede railways, the mere alteration of the name will be quite enough to make this entrance applicable to any other purpose. Of such universal application is it, that it is scarcely within the range of possibility to mention the number of purposes to which it could be applied as an entrance. With ample scope, with ample funds, and no restriction, and with excellent material, we should have expected something better than the mere commonplace portico, which we can see in almost every street. What is architecture? or, rather, what will architecture come to, if our greatest public works are only to astonish us by the amount of their cost? I know that this building has its admirers: but who are they, and what do they admire in it? Generally, people passing near look up with amazement, and feel a certain degree of pleasure at its size. I myself was struck with its colossal dimensions when I stood in one of the flutes of the columns. But would it not be equally possible to produce these sensations by an original design? or are we at such a low ebb of mental enjoyment, that we can only feel gratified by the imitation of known forms? and have we not yet arrived at a sufficiently high pitch of civilisation to be able to appreciate works of originality? He who

first steps out of the beaten path soon repents his indiscretion; for his works are to be judged by a committee who have but limited ideas on the subject, and whose knowledge is confined to what they are constantly in the habit of seeing. Show them temples which have been admired for ages in Athens, and say you will reproduce them here, and you are immediately in favour; but the poor idiot who presumes to bring forward a work of originality, one which has cost him great pains and labour in producing, though full of genius of every quality, is not looked at, nor heard of: we ask in vain who he is; he shrinks back, and, if he must live, he must produce works that can be seen and understood by those who have the power without the knowledge.

*London, June*, 1838.

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## REVIEWS.

ART. I. *A Dictionary of the Architecture and Archæology of the Middle Ages; including Words used by ancient and modern Authors in treating of Architectural and other Antiquities; with Etymology, Definition, Description, and Historical Elucidation: also, Biographical Notices of ancient Architects.* By John Britton, F.S.A., Author of the "Architectural and the Cathedral Antiquities of England," and of other Publications. Illustrated by numerous Engravings by J. Le Keux. 8vo. Part IV. and last, p. 177. to 498., six 8vo copperplates and two woodcuts. London, 1838.

IN our second volume, p. 546., we characterised Part III. of this work as of first-rate excellence, and expressed a hope that it would soon be completed. We have now great pleasure in making known to our readers that this is the case; for in no other architectural dictionary will they find information so complete and so correct. The work has been one of immense care and labour; but it is evidently a favourite one with the author; and he has, in consequence, been unsparing of expense. That which gives great value to every separate article in this dictionary is, that, after every explanation of a term (with very few exceptions), the authority from which the explanation is drawn is given, as in Johnson's *Dictionary*. We give, as an example of this, the article Cupboard, at which the volume happens at this moment to open, because it will show that the *Dictionary* is not only a work for architects and antiquaries, but for general readers: —

"CUPBOARD; a board, or shelf, to place cups on. The cupboard formerly supplied the place of the modern side-board; being, in some instances, a single shelf fixed against a wall, and, in others, framed in stages, rising one above another, so as to admit of an ostentatious display of plate. It was generally covered with carpets. In old records are many notices of the

valuable articles placed on cupboards; and from Lord Fairfax's 'Orders for the service of his household,' it appears that there was a servant called the cupboard-keeper, whose duty it was to supply the guests with wine. Some cupboards of plate were called court-cupboards; and the livery cupboard is supposed to have been that on which the liveries, or evening collations, were divided, preparatory to their being sent to the chambers. See *Nares's Glossary; Hunt's Exemplars*, p. 122.; and note to p. 108. of the *Northumberland Household Book*."

In the preface, the author observes that, —

"When he commenced the *Architectural Antiquities*, in 1804, he experienced no small difficulty in obtaining something like a grammar and dictionary of that architecture which he had undertaken to illustrate and describe. The Essays by Warton, Bentham, Grose, and Milner had been collected and published in a small volume, by the late Mr. Taylor of the "Architectural Library," in Holborn, London; but his volume did not attract much publicity at first. The science of architectural antiquities was in its infancy, and, like human infancy, was uninformed, eccentric, and undisciplined. It is a generally admitted fact, that the *Beauties of England and Wales*, and the *Architectural Antiquities*, which grew out of the former, created a new era, produced a new taste and partiality for the architecture of the middle ages. Once awakened, the new spirit became active and full of curiosity; and, as antiquarian subjects, in different parts of Europe, were numerous and interesting, they commanded admiration, and induced authors and artists to publish illustrations of their histories and characteristics. Within the last thirty years, more has been written on architectural antiquities than had ever before been produced. The result is an improved and enlarged appreciation of their manifold merits and intrinsic capabilities; a more intimate acquaintance with the art, the sciences, and the customs of bygone times; a correction of many errors and prejudices, and a disposition to apply some of the principles of mediæval architecture to modern erections.

"From architectural and archæological glossaries and dictionaries the author has not derived much essential aid. He has, however, sought information from all that has been published in that form, as well as from many other volumes and essays which have appeared in the English and in foreign languages. The works hereafter enumerated will serve to verify this assertion: but many other authorities have been consulted; and it is hoped that the numerous references made in the following pages will be a guarantee for fidelity and zeal." (*Pref.* p. x.)

After remarking on all the different architectural dictionaries and glossaries, and dictionaries of architecture and antiquities, the author concludes by thanking his numerous friends and coadjutors, who have contributed *con amore* to improve the volume by useful suggestions and corrections.

The work is dedicated to the Queen, and commences by the following rather striking sentence: — "Sanctioned by your Majesty's royal command, I, a sexagenarian, dedicate this volume, on architectural antiquities, to the most youthful female sovereign that ever occupied the throne of great Britain."

In conclusion, we have only to state that Britton's *Architectural Dictionary* will henceforth be considered essential to every library, whether general or architectural.

ART. II. *A Practical Treatise on Railroads, and Interior Communication in general; containing numerous Experiments on the Powers of the improved Locomotive Engine; and Tables of the comparative Cost of Conveyance on Canals, Railways, and Turnpike Roads.* Third Edition, with Additions, illustrated by several new Engravings. By Nicholas Wood, Colliery Viewer, Member of the Institution of Civil Engineers, &c. 8vo, pp. 760. London, 1838.

THE first edition of this work appeared in 1825, and was favourably received; the second, which appeared in February, 1831, was still more so. This third edition contains, in addition to the experience of the last seven years, obtained on the Liverpool and Manchester Railway, and those for the conveyance of minerals and heavy goods in the north of England, all the information displayed in the formation of the London and Birmingham, Grand Junction, Newcastle and Carlisle, and London and Southampton, Railways.

"With the exception of some of the railways in Scotland, all those lines have been constructed on the same principle, and of the same width, as that of the Liverpool and Manchester railway. In forming a line of communication, however, between London and Bristol, Mr. Brunel has constructed a railway, of an increased width between the rails, and upon a principle essentially different from that of these other railways, a portion of which has recently been opened to the public.

"An historical and descriptive account of all the improvements made in the progress of these great works, not only in the construction of the railways, but in the motive power, and all the machinery used upon them, constitutes, therefore, part of the additional matter presented to the public in this edition. Numerous additional experiments, made to elucidate the powers of railways as a system of communication, are given in this edition, resulting from the increased opportunities afforded by the different railways now in operation.

"In this edition, also, we have availed ourselves of the very valuable information given by M. Pambour in his work on the locomotive engine, which contains a complete elucidation of the powers of that machine, and whose experiments are of the utmost importance in exhibiting the capabilities of the improved engines. Professor Barlow's experiments and calculations on the strength of rails have also contributed largely to our stock of information, which has enabled us to enter more into detail upon this part of the subject, than in the last edition.

"Considering, from the experience of the Liverpool and Manchester Railway, that we had sufficient materials to justify us in entering into calculations of the expense of working railways, we have, in this edition, gone into estimates of the cost of all the different charges of railway conveyance, for both goods and passengers; and have given tables of the expenses, under various heads of charge, at different rates of travelling. We have also gone into the expense of conveying by turnpike roads and canals, which we have compared with the cost of conveyance by railways, at the several rates of speed usually accomplished in the conveyance of heavy and light goods and passengers on these different systems of internal transport.

"These additions have necessarily increased the size of the work considerably; but we trust the additional information will be a sufficient justification, and that, though not so complete as we could have wished, compiled as it has been at casual intervals, snatched from professional avocations, the work will be found generally useful on so important a subject as that of railway communication."

ART. III. *Perspective Simplified; or, the Principles of the Art, as laid down by Dr. Brook Taylor, familiarly illustrated.* By Z. Lawrence. 8vo, pp. 47, Nine folding Plates. London, 1838.

THE superiority of Dr. Brook Taylor's treatise on perspective to all others has, Mr. Lawrence observes, been universally admitted. Most subsequent authors have deemed it their highest ambition to illustrate the principles which he introduced; and so repeated have been the works for that purpose, that some apology seems necessary for adding to their number; the more especially, as many of them are as complete as can well be imagined. "It is, however, to this very circumstance that may, perhaps, be traced the fact of their being so little read. The principles themselves are simple and few; but, when their full application to practice is attempted, the field for explanation becomes so wide and tempting, that few writers can confine it to less than a volume of a bulk that deters the general reader." After enumerating the different authors who have written on perspective from the time of Dr. Brook Taylor, Mr. Lawrence observes: —

"After so much earnest instruction, when there is confessedly no advance to be looked for, nor even desired, in the science itself, more novelty in the way of illustration is as little to be expected, and as little required. The main improvement that suggested itself to me, as still untried, was concentration; to concentrate the subject into a few of the most essential theorems and problems, applying them to plain examples, illustrated in the most familiar manner. To this end, I have adopted for the representations objects of the most simple construction, having resisted all temptation to variety for the mere sake of embellishing the work with attractive plates, although I trust that those inserted will not be found deficient in interest." (p. iii.)

The letterpress is comprised in thirty-seven pages, and the greater bulk of the volume consists of plates. The first two of these are cut, and joined together in such a manner as to admit of their being raised and employed as models; so that by their means the first principles, or, at all events, what perspective is, may be rendered palpable to the most obtuse intellect. The work, we have no doubt, will be found extremely useful, not only in schools, but for self-taught artists.

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ART. IV. *Transactions of the Society of Arts, Manufactures, and Commerce.* Vol. LI. Part II. 8vo, pp. 175. London, 1838.

THIS half volume contains an article on "Building an Obelisk without Scaffolding," of considerable interest to the architect. The mode was invented by Mr. T. Slacks of Langholme, mason, who built, according to this mode, an obelisk upwards of 100 ft. high, in honour of General Malcombe, on the summit of Whitaw, a mountain overlooking the town of Langholme. Work-

ing drawings of the machinery which he used are in the possession of the Society of Arts; and the article is illustrated by one copperplate and three woodcuts. We shall probably give some further details respecting it in an early Number.

An article on limestone and calcareous cements, by the secretary, is a most valuable paper, and, of itself, ought to recommend this part of the Society's *Transactions* to every architect.

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ART. V. *Portraits of British Forest Trees, with and without their Foliage; together with Instructions for drawing Trees from Nature, and Rules for obtaining the Height, Width, and true Proportion that each Part bears towards another, clearly explained and exemplified.* Drawn from Nature, and on Stone, by Geo. R. Lewis, Author of a "Series of Etchings portraying the Physiognomy, Manners, and Character of the People of France and Germany; Principal Muscles of the Human Body; and an Address on the Subject of Education as connected with Design," &c. In folio Numbers, each containing six Drawings. London and Hereford, 1838. Price 20*s.*

THE author of this work is well known as an artist; and, in the drawing of trees, he may be considered as ranking next to Strutt. He was selected by His Grace the Duke of Northumberland to make drawings of all the fine specimens of trees in the grounds at Syon; and from these drawings (through the kindness of His Grace) were made upwards of a hundred engravings for our *Arboretum Britannicum*. Mr. Lewis also made various other drawings for that work in the Horticultural Society's Gardens; at Kenwood; Forty Hill, Enfield; Moccas Court; Foxley, the seat of the late celebrated Sir Uvedale Price; Tiberton, Madeley, and various other places in the neighbourhood of Hereford. We mention these things to show that Mr. Lewis has not begun to draw and publish trees as a novice, but as an artist of experience in this department. We shall now let Mr. Lewis speak for himself.

"I have commenced this work with the Sire of the Forest, the Oak. The specimens selected are those in the lawns of Tiberton Court (the seat of the Rev. Henry Lee Warner), whose majestic and perfect forms are so well known, for variety in the numerous curves that their numerous ramifications are projected into, their perpendicularity of stem, and the great quantity of timber that each contains; all of which qualities, contributing to the perfection of their general form, convinced me they would afford that information the public would gladly receive.

"I felt confident that justice could not be done to the grandeur and sublimity of these extraordinary trees, unless they were seen in their wood, as well as in their foliage; for, when we take their skeleton state, and follow the upright line from their ponderous base to their great height, with so much of a perpendicular width, our surprise and admiration of a work so stupendous must be raised to the greatest extent. Possessing this wonderful piece of

framework, we can then compare it with its clothed and perfect state, which will afford us much information, and prove that there is as great a difference in the appearance of each tree in its wood, as there is in the same when in leaf." (p. 3.)

We shall have more to say on this work when we see Part II.

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ART. VI. *An Historical Essay on Architecture.* By the late Thomas Hope. Illustrated from drawings made by him in Italy and Germany. Royal 8vo, 2d edition. London, 1835.

(*Continued from* p. 320.)

CHAP. XXXIII. *The Question of the Person by whom, or the Place where, the pointed Arch was invented, not to be solved, and of no Importance to the general Question of the Invention of the pointed Style.*

"Long after the decline of this new style, which, in its origin, excited an enthusiasm so universal, that, on its first appearance, every new building erected throughout the range of the Latin church was made to exhibit all its characteristics; and that even most of the old ones, finished in the Lombard, or rounded, method, were, as far as feasible, altered to it; when it not only had expired, but even the very tradition respecting its origin was become obliterated, men began to wonder whence, where, at what time, and among whom, such a great change had originated; what were the causes, what the foundations, what the rudiments, who the authors and parents, of this universal pointing of Christian architecture.

"Of these, many, only viewing its peculiar distinctive marks with a superficial glance; only struck with its singularity of external appearance, and overlooking that of internal principle, which was the prior cause and foundation of the other, seem to have been intent on the mere investigation of one single of the many internal features of that style, namely, the pointed arch, in a manner insulated and exclusive, and out of that connexion which this maintained with all the other equally essential characteristics, entirely changed from those of every other preceding architecture.

"But the mere question, 'Who invented the pointed arch?' taken thus separately, and out of its combination with the other modifications of the pointed style, is in itself a subject of no more interest than would be the ascertaining of the person who first invented the horseshoe, or trefoil, or quatrefoil, or cinquefoil, or elliptic, depressed, or any other peculiarly shaped arch, equally, in process of time, adopted in the pointed style; since, after the general abstract principle of the arch had been once introduced and brought into practice, the pointed modification of it might be formed out of the *disjecta membra* of the round, without the least new stretch of genius or invention, worth consideration; and might thence, in many different situations, from mere local circumstances of expediency, or whim, or even accident, be applied separately, and without any communication between the authors of the one and the other, so as to entitle each of these authors alike to such merit as the invention might deserve. This seems, in fact, to have been the case; since we find that in churches, in other respects round-headed, some arches, which were necessarily compressed, were pointed. Witness, at Paris, St. Germain des Prés, whose nave and choir were finished before the death of the Abbot Morand, their founder, in 1014, and whose choir, being the first part wanted, was doubtless, as in other churches, the first finished; the round east end is composed of five narrow pointed arches. The crypt of St. Denis, supposed by some to be of the time of Charlemagne, and at any

rate preceding the era of the regular pointed architecture, contains arches compressed in their latitude, and pointed at their summit.

"Nor would the mere question of when or how the mere pointed arch was invented, even if solved, avail us in ascertaining where or how originated the pointed style; since the fundamental characteristics of that style are independent of, lie deeper than, that arch; and its employment is not the cause, but only the consequence, of these; since, as we have already shown, in many countries and in many ages, and long prior to the creation of the pointed style, in buildings not only of the earlier Lombard, but still earlier Byzantine, nay, still more primitive antique Roman style, the pointed arch had already appeared as an insulated feature, so situated, so intermixed with its round neighbours, that there could not be the least pretence for not considering it as coeval with these. Yet, during the whole intervening lapse of time, we cannot discover the least approach to the really essential characteristics of that style, or even this particular feature considered in any other light than as an accident, or an expedient seldom employed, and still more seldom made conspicuous, but rather confined to remote or obscure recesses."

After enumerating a number of buildings in different parts of Europe, in Asia, and in Africa, where pointed arches may be found, the author thus concludes:—

"In every ancient Mohammedan city throughout Europe, Asia, and Africa, similar remains may be found in great numbers, dating from their first foundation: and even among the relics of pagan Rome, those of temples and baths, with polygonic cupolas or groined vaults, in fact, present this feature, not to speak of those Byzantine mosaics of the earliest period, which, representing pointed arches, proved the reality to have existed; or of those dyptics of the earlier part of the middle ages, preserved among the Christian antiquities of the Vatican Museum, which show both pointed and scolloped arches, or of a silver *thuribulum* or censer, seeming of the eighth or ninth century, in the same collection, which represents both trefoil and horseshoe arches.

"Indeed, from the early, the widely diffused, and yet unconnected appearance of the mere pointed arch, and at the same time the evident contempt in which it was held, as a thing which might be admissible, as an expedient, and in places of little consequence, but should be avoided where there was room for others; until that much later period when the peculiar properties of the pointed style caused it to be considered as an adjunct preferable to all others, the question of its origin would be as difficult to solve, as it is unimportant."

(*To be continued.*)

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## MISCELLANEOUS INTELLIGENCE.

### ART. I. *Domestic Notices.*

### ENGLAND.

*KYAN'S Patent.*—Sir Robert Price, in withdrawing the motion of which he had given notice, with respect to the adoption of the use of Kyan's patent in the naval yards of this country, expressed a wish to know whether the invention had been subjected to experiment under the direction of the Admiralty. It was well known that it was now in use in the Dutch navy.—Mr. Brotherton hoped the secretary to the Admiralty would well consider before he gave a decided answer to the question, inasmuch as that a patent was about to be taken out [by Mr. Margary] for another invention, of which the

preserving qualities were infinitely greater than the invention of Mr. Kyan. [Sulphate of copper.]—Mr. Charles Wood replied that the invention had been applied in the naval yards, under the direction of Mr. Kyan himself; but nothing had occurred, in the course of the experiments, which would enable him to give a definite answer as to the probability of its general adoption in the navy." (*Morn. Chron.*, Aug. 7. 1838.)

*Mr. Walter of Philadelphia*, architect, arrived in London about the end of July, and has since set off for Italy. Mr. Walter brought with him a number of plans, elevations, and views of buildings which he has designed and erected, or which are now in the course of execution. Among these, the chief are, a large perspective view of Gerard's College, Philadelphia; and the elevations of the Philadelphia Workhouse, of a town hall, and of several private buildings. We shall give a history of Gerard's College, and a copy of the engraving, in our next Number; and, in the mean time, we would wish to direct attention to the excellent point of practice adopted by the town council of Philadelphia; viz., that they allow no public building to be erected, however small or apparently insignificant it may be, without the design having been previously submitted to and approved by some regular architect. In consequence of this regulation, there are less architectural deformities in Philadelphia than in any other city in the Union. It may be considered as a fortunate circumstance, in an architectural point of view, that Gerard belonged to Philadelphia, for the improvement and benefit of which he left nearly the whole of his immense fortune.—*Cond.*

*M. de Châteauneuf*, architect, of Hamburg, whose design for an exchange is mentioned in p. 320., has been in London for some weeks past, examining our public buildings and suburban villas and gardens, and superintending the publication of a selection of his designs. These will be published by Ackermann, in one volume, imperial 4to, in the course of the autumn.—*Cond.*

*Dr. Zanth*, a learned architect and author, from Stuttgard, is now in England, commissioned by the king of Wirtemburg to examine the modes of constructing hot-houses, and heating them with hot water.—*Cond.*

## IRELAND.

*A Moravian Burial-Ground at Ballymena.*—"At the back of the church is the graveyard, a level of stainless velvet verdure spotted with shade. The stones are all flat, and alike. They lie in long rows, bedded in the grass, with roses sometimes waving in wild clusters over the stone. The men and women occupy different sides of the principal aile; and the rows are regulated again according to age, marriage, and so on. The yard is rather full, for the brethren have been here, I think, some seventy years." (*The American in Ireland*, as quoted in the *Athenæum*, July 21. 1838.)

*Railroads* in Ireland have been projected by a government commission, to intersect the country in various directions, from Belfast on the north, to Cork on the south; and the remainder of the country is to have new and improved lines of common road carried through it. (*Morn. Chron.*, Aug. 9.) This improvement; the poor-laws, about to be introduced; and a national system of education, which cannot be withheld longer than a year or two; will soon raise Ireland to a pitch of prosperity that few of us at present can form an idea of. We observe in the *Report* of the Railway Commissioners, the state of the Irish labourers noticed in the following terms:—"From north to south, indications of progressive improvement are every where visible, and most so in places which are accessible to the influence of steam navigation; but these signs of growing prosperity are, unhappily, not so discernible in the condition of the labouring people, as in the amount of the produce of their labour. The proportion of the latter reserved for their use is too small to be consistent with a healthy state of society. The pressure of superabundant population (at least with respect to the resources as yet developed for their maintenance and occupation) is perpetually and powerfully acting to depress them." (*Report*, &c., as quoted in *Morn. Chron.*, Aug. 9.)

## Art. II. *Retrospective Criticism.*

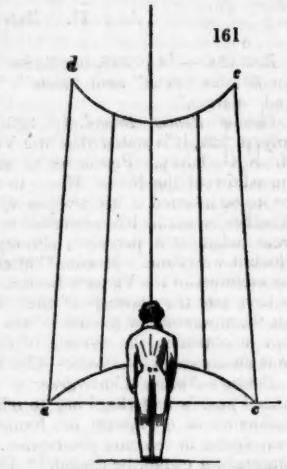
*Errata.* — In p. 342. line 3., for "buttresses" read "buttressed;" and in line 31., for "even" read "men." In p. 344. last line but six, for "alarm" read "alarum."

*Victoria Rooms, Bristol.* (p. 323.) — In the *Architectural Magazine* for July, p. 323., it is stated that the Victoria Rooms, Bristol, were designed by Mr. S. G. Tovey. Permit me to say that Mr. Tovey was only employed by the editor of the *Bristol Mirror* to make a perspective drawing of the building, to be inserted in his newspaper, from the plaster model in my local office. Whether or not he has succeeded to the extent desired, does not require any great judgment to perceive; although I believe it has answered the end for which it was done. Messrs. Whitehead and Co. made the woodcut. Being the architect of the Victoria Rooms, it would have afforded me much pleasure to have sent the drawings of them for your inspection, if there had been any but those wanted for the use of the building; as I always feel much satisfaction in obtaining the opinion of the profession, and have read with benefit your numerous publications.—*Charles Dyer. 36. Guilford Street, July* 6. 1838.

*Parsey's Natural Convergence of Perpendiculars.* (p. 282.) — In reply to Kata Phusin's remarks, I beg to offer the following observations:— The introduction of my system has brought about the consciousness of an effect, unavoidable in common observation. The principle of natural convergence is admitted: it cannot be denied. "The disputed point is, whether vertical convergence should be represented in a drawing." If there be any reason for converging *horizontals*, there is the same for *perpendiculars*. I believe man has five senses, and no more; that by these only he gains sound knowledge, and that judgment is a thorough understanding of them, and acting strictly by their dictates. Objects present to the sight natural appearances. Drawings ought to be representations of them. Productions conformable to none of the senses are nonsense. Will the image of the front of a building (*b c d e*, fig. 99. p. 282.) be the same from the point *a*, as from one opposite the centre, or any other point? Certainly not. Will it not foreshorten from the point *a*? It must. If it foreshorten, will it not converge? It must. Can the eye move from the centre without these effects, instantly commencing and increasing in a geometrical ratio, according to the increased obliquity of the view? Does its vertical or horizontal position make any difference to the natural image? If Kata Phusin will read p. 45. of *Perspective Rectified*, he will see the delusion of the vertical pane of glass explained; showing that its position being parallel to the objects seen through it, the tracing on it will produce parallel perpendicular lines, whether the pane be horizontally direct or oblique to the vision. I perceive that the image of my window, through which I see objects, runs itself into perspective, as well as the objects projected through it. The plane of the picture or image seen I always find to be at right angles to the axis of vision, so clearly demonstrated by the spectrometer, which Kata Phusin says I "must put aside in applying it to the eye." I can apply it to nothing else. It bounds the indefinite view, determines the natural quantity of the field of view, contrasts the perpendiculars of the picture with the perpendiculars on the earth, and defines the foreshortening and convergence of surfaces in every position. If I look horizontally forwards, it shows the vertical plane of the picture. In sketching alps, precipices, or bird's-eye views, it shows the inclination and declination of the plane, or, in revolving the view horizontally, the transverse directions of the plane. With this instrument there will be always 30° in all directions about the point of sight, or axis of vision. No object will project itself through this natural medium with the double convergence exemplified by Kata Phusin "by means of reflections in water." That effect is only naturally portrayed when there is water to reflect the inverted convergence. That perpendiculars converge when their

situation produces it in the eye, is shown in the following diagram. Let *a b c d, fig.* 161., be a large semi-cylinder. Conceive a person standing opposite to the middle, with the eye below its centre. In seeing, or representing what is seen, the perpendicular in the axis of vision, or direct view, will appear perpendicular, while *a d, b c,* will converge, and the intermediate parallels will also converge to a common point. The curve *d c* will appear less than *a b*. Now, as the eye of every one is a centre to himself, suppose the lines of that cylinder to be the perpendiculars of buildings in the same position, would they cease to appear to converge, because they are not lines in a cylinder, which no draughtsman would delineate by parallel lines? All perpendiculars appear to converge on the principle of the cylinder, and only the *one* cutting the axis of vision can appear upright. The ordinary observer, by revolving the head, makes each perpendicular the same in effect as a single one in vision.

161




What sound reasons, then, can be advanced against the representation of natural convergence? I feel satisfied that Claude and Canalletti, and every other eminent artist, would have practised it, if they had perceived and defined the natural laws. I may also say, with perfect confidence, that Kirby's *Brook Taylor's Perspective* would not have had the frontispiece it has, with its admonition, if that great mathematician had known the science of vision; for in the body of the work, amid other optical errors, we have cylinders viewed obliquely with circular, instead of elliptical, ends; an error no less inconsistent than the reversed size of the objects, and the man on the top of a distant hill lighting his pipe from the candle held from the window by an old woman. The objections offered to the representation of perpendicular convergence seem to me to arise from a misconception of the natural plane of the picture, and the present inability to produce the true effects. My working methods are extremely simple, and not, as conceived, more complicated than the old system. The slightest convergence is readily produced vertically, as well as horizontally. Mr. Nicholson invented the centrolineal to overcome the practical difficulty of converging to inaccessible horizontal vanishing points. His views must have been very different from the arguments advanced in p. 283., and, indeed, of all who know the value and use of that scientific instrument. I have pleasure in stating that able draughtsmen at Manchester were delighted in finding the practical utility of that invention, which before did only half its purpose. I not only feel a confidence in the practicability of my theory, but I am borne out in that confidence by the first talent of this country. I certainly can excuse Kata Phusin for doubting, if all his and other objections can be answered: it is a pithy subject; and, between habits and impressions, confirmed by undisturbed maxims, and the delusions of the uncultivated eye, continual qualms will attend the investigation. The solution of this problem may be justly viewed in a national light; and, that its benefits might be enjoyed by the present as well as a future generation, nothing would be more in my way, than to meet the first talent of the day in "fair discussion," to set at rest every doubt on the subject, and to establish a perfect science of vision and linear perspective. — *Arthur Parsey.* 91. *Regent Street, June* 8. 1838.

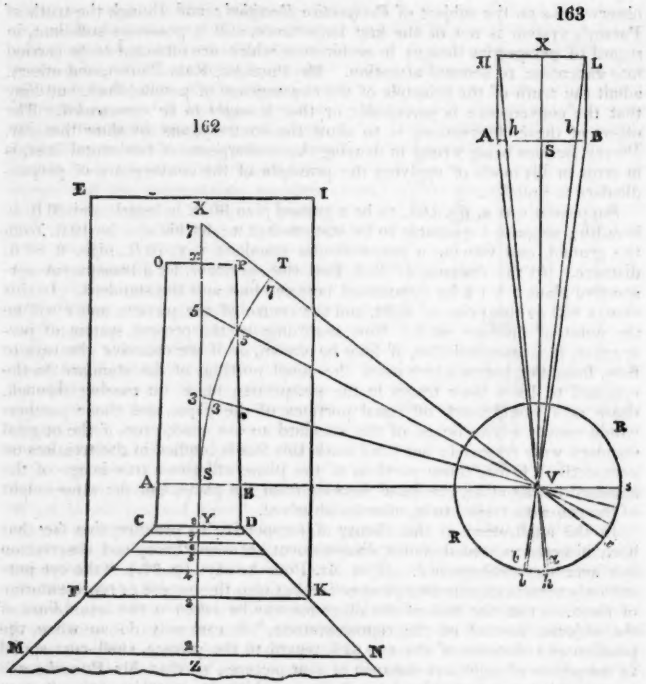
*Parsey's Perspective Rectified.* (p. 282.) — I have a desire to make a few

observations on the subject of *Perspective Rectified;* and, though the truth of Parsey's system is not of the first importance, still it possesses sufficient, in regard to perspective designs in architecure which are intended to be carried into execution, to demand attention. Mr. Pococke, Kata Phusin, and others, admit the truth of the principle of the convergence of parallel lines, but deny that the convergence is *perceptible*, or that it *ought to be represented*. The object of these observations is to show the contrary, and to show that Mr. Parsey, besides being wrong in denying the convergence of horizontal lines, is in error in his mode of applying the principle of the convergence of perpendiculars to practice.

Suppose M C D N, *fig.* 162., to be a ground plan 80 ft. in length, and 20 ft. in breadth; suppose a spectator to be stationed at Z; let his eye be 10 ft. from the ground, and viewing a perpendicular standard Y X, 70 ft. high, at 80 ft. distance. At the distance of 30 ft. from the spectator, let a transparent perspective plane F E I K be introduced between him and the standard. In this case, S will be the point of sight, and the centre of the picture, and V will be the point of distance, 80 ft. Now, according to the present system of perspective, it is assumed that, if lines be drawn, or if we conceive the rays to flow, from the points which mark the equal portions of the standard to the eye, and to leave their traces in the perspective plane on passing through, those rays would mark off equal portions of the plane, and those portions would convey a true image of the standard to the mind, even if the original standard were removed; but (and mark, this fact is implied in the treatises on perspective), before those portions of the plane will give a true image of the standard to the mind, the same distance from the plane, and the same height of the eye with regard to it, must be observed.

In the application of this theory of perspective to practice, this fact has been hitherto unheeded, and a disagreement between theory and observation is a necessary consequence. If, as Mr. Pococke says (p. 94.), "the eye puts not only natural objects into perspective, but also the picture or representation of them, so that the lines of the diagrams may be taken as the actual lines of the objects, instead of the representatives," it can only do so when the position and distance of the eye with regard to the picture, shall correspond to the points of sight and distance of that picture; so that Mr. Pococke will perceive that the particular inconvenience which he mentions (viz., "when we view any picture, we must always have our eye directly opposite the junction of the horizontal and vertical lines to which the others converge, and at one particular distance from it, and must look steadfastly and steadily at that point alone, or else all the parts would be out of drawing,") attends the adherence to the present system, and which it should be the object of Mr. Parsey's system to remedy. Now, figs. 31. and 34. (p. 92.), Mr. Pococke says, "are not what are to be drawn, but only the figures which are formed in the eye." But, if this be true, I contend that the forming of these figures in the eye, or on the retina, can be accomplished only by the particular inconvenience mentioned above; and, if we would avoid this, we must draw the figures as they are there shown; in support of which I offer the following reasons.

I have said that there is a disagreement between the theory of perspective and observation. The theory of the present system requires that we should look at a picture from a given point and at a given distance; but it was never intended that we should, and we never do, view a picture in that position; and convenience requires that we should adopt some system, in delineating original objects in a picture, which shall, at any distance, convey the nearest approximation to the true image to the mind. This disagreement between theory and observation was partly perceived by the Jesuit in his system of perspective (see p. 128.); and he endeavoured to rectify the error, as far as regards human figures, by a rule which is equally applicable to figures of all denominations. The rule is, "to find in what proportion equal figures grow




less to the eye, when placed directly over one another." For instance, in the above diagram, where s is the point of sight and centre of picture, and v the point of distance, 80 ft., Y X is the representation on a plane of a standard 70 ft. high, which standard, from s to X, is divided into equal portions of 20 ft. each: but experience shows us that the upper portions would appear considerably less to the spectator stationed at z; yet the representation does not, as it ought, convey to us the sensible idea of a diminution. The rule which the Jesuit lays down for finding the diminution is, to draw lines from the equal portions of s X to the eye, or point of distance, v, and, with the compasses at v, and at distance v s, draw the arc s T; then the divisions of the arc, caused by the lines drawn from the equal portions of s X to the eye, will give the proportionate diminution of the corresponding portions, according to their perpendicular altitude from the point of sight. Consequently, the length of the arc s T is the proportionate extent of the surface of the retina affected by the rays flowing from s X, and is therefore the apparent length of the line s X; and which ought to be the length of the line drawn on the perspective plane, in order to give an exact idea of the object; which the line s X would fail to do, unless, in viewing the plane, the distance and the height of the eye exactly correspond to the points of sight and distance of that plane. If this rule have any foundation in truth, there is sufficient evidence of the perceptibility of the convergence of parallel lines to demand our representing it; and that this rule has such a foundation, will be more clearly evinced by a consideration of the visual apparatus.

Let R R, *fig.* 163., be a section of the spherical surface of the eyeball, or the retina, S the point of sight, V the point of distance, and V S the axis of the eye. Now, assuming Brewster's principle to be correct (see *Optics*, Lardner's *Cab. Cyc.*), V will be the centre of visible direction of the eye, "for, as the line of visible direction is a line perpendicular to the retina, and as the interior surface of the eyeball is, as nearly as possible, a perfect sphere, all lines perpendicular to the retina must pass through one point, and this point will be the centre of the spherical surface; and every point of a visible object will be seen in the direction of a line drawn from the visible point to this centre." Therefore, if, from the points S and X, and the intermediate points, lines be drawn through the centre of visible direction V until they meet on the surface of the retina, they will show the extent of the surface affected, which will be *s x*; and that extent of surface affected, and the intermediate divisions, will give the apparent length, and the proportionate diminution of the line S X, and its intermediate divisions. We here see the fact of the diminution accounted for on physical principles. If the rays, on passing through the eye, were received on a retina the surface of which was plane, instead of concave, no diminution of the equal portions would take place: and it is in consequence of inattention to this fact that the disagreement between theory and observation occurs.

The convergence of parallels being admitted by Mr. Pococke, Kata Phusin, and others, I cannot see how it can be denied that the convergence is perceptible, and ought to be represented, without, at the same time, denying what Mr. Pococke admits; viz. the truth of the optical law, that objects appear greater or smaller, according as they are viewed under a greater or smaller angle. Suppose, for instance, the spectator at Z were viewing a vertical plane 70 ft. high, and 20 ft. broad, at the distance of 80 ft.: V X is 70 ft. high; but we have shown that Y T is the length that ought to be represented on the perspective plane, which will be about equal to Y *x*. Let C O P D be the vertical plane, and A B equal to 20 ft. Now, the point S is distant 80 ft. from the spectator's eye, and the point X nearly 100 ft.; surely, then, a difference of distance equal to 20 ft. will make a difference of angles sufficient to make the difference of the length of two equal objects abundantly perceptible. If, then, we suppose V S, *fig.* 163., to be the axis of the eye, and make V S and V X equal to V S and V X, *fig.* 162., and make A B, *fig.* 163., equal to A B, *fig.* 162., and likewise make H L equal to A B, and draw lines from those points, through the centre of visible direction V, to the retina, we shall see that the line H L affects a considerably less portion of the retina than A B; consequently, *h l* is the apparent length of H L, and is the apparent length of the top O P of the vertical plane C O P D, as seen by the spectator, and very far from being *imperceptible*. C O, O P, and P D, should have been curved lines, as drawn by Mr. Pococke in the figures in p. 92.

These illustrations demonstrate the perceptibility of the admitted facts, the convergence of parallels; they also demonstrate that equal figures, when placed directly over each other, diminish in proportion to their distance from the point of sight. They demonstrate the constant relation of diminished length with increasing height; and that the usual mode of representing objects in perspective fails to convey a correct image, except the eye maintain one exact position with regard to the points of sight and distance; which may be shown by setting off on S X, *fig.* 162., the division of the arc S T, and removing the eye to a greater distance from, and exactly opposite to, S X; when, by drawing lines from the equal portions of S X through the centre of visible direction, until they meet upon the retina, we find that the relation of diminished length with increasing height is totally destroyed; while, if we follow the same process with the divisions corresponding to the arc S T, we find that, in spite of the alteration of position and distance, the relation is maintained, not precisely, but proximately.

If it should be admitted that the principle upon which these illustrations are based is true, it will admit of very easy adaptation to practice. If it be

denied, then there is an end altogether of Mr. Parsey's doctrines. Like all new principles, when attempted to be put in practice, it appears an absurd innovation on the old, even to those who admit its truth. Habit, association, and prejudice having convinced us that parallel lines always appear equally distant, it becomes very difficult to believe the contrary, especially if we believe visual perceptions to be intuitive; but, as Dr. Thomas Brown says, we must remember "that vision is an art of long and tedious acquirement; a mixed product of innumerable calculations and observations; that we learn to see, and that vision is, what Swift paradoxically defined it to be, *the art of seeing things that are invisible.*" — *Chappell Smith. June* 5. 1838.

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## Art. III. *Royal Institute of British Architects.*

*June* 25. — P. F. Robinson, V. P., in the chair.

John Foulston, Fellow, of Plymouth, attending for the first time, since his election, was duly admitted by the chairman.

The secretary communicated that the Council had requested His Lordship the president to apply for Her Majesty's permission to allow Mr. Behnes a sitting for the purpose of taking a bust of the Queen, to be deposited in the Institute, as patroness; and that the following letter on the subject had been written by His Lordship the president.

"St. James's Square.

"My dear Lord, I have been requested, as president of the Institute of British Architects, to solicit your kind assistance as one of our members. The Institute is very ambitious of placing in its library a bust of Her Majesty, who has been graciously pleased to honour us by becoming our patroness. Mr. Behnes, who has received the appointment of sculptor to Her Majesty, has signified his readiness to execute it, if Her Majesty's sanction can be obtained; and the fact of being already in the honourable and distinguished situation of sculptor to Her Majesty, may obviate any difficulty which might arise from Her Majesty's reluctance to grant to one public institution what she might be frequently called upon to repeat in favour of others; for Mr. Behnes, being once in possession of Her Majesty's likeness, would be enabled to supply further demands without further trespassing upon Her Majesty's patience. If you can, without impropriety, lay our wishes before Her Majesty, and she should be graciously pleased to accede to our prayer, it will be most deeply felt, and most gratefully acknowledged, by the Institute, in whose behalf I write. I remain, my dear Lord, very faithfully yours, (Signed) De Grey."

"*The Marquess of Lansdowne.*"

(*Reply.*)

"Berkeley Square, June 20. 1838.

"My dear Lord, I had an opportunity lately of laying before Her Majesty the request which you had desired me to convey to her from the Society of Architects, that she would be pleased to sit for them to Mr. Behnes, her sculptor, for a bust. Her Majesty received the expression of their wishes most graciously, and very kindly promised to sit to Mr. Behnes for that purpose, when her leisure admitted of it; adding, however, at the same time, that she had been much pressed some time ago to sit to Sir Francis Chantry for a bust, and considered herself in some degree as under a promise to do so; so that she could not undertake to say to which she might give precedence, but would leave that to be settled hereafter. I remain ever, my dear Lord, very faithfully yours, (Signed) Lansdowne."

"*The Earl De Grey.*"

Amongst the donations announced were: Durand's Parallèle des E'difices anciens et modernes; presented by Sir Alexander Grant. Guide to St. Petersburg; presented by Dr. Granville. Copy of his Work on the Spas of Germany, and various Plans and Elevations of Hospitals, and scientific Institutions in Paris, chiefly from drawings taken by himself. J. Foulston, Fellow, also presented a Model of the Scaffold for erecting the Devonport Memorial.

The thanks of the members having been voted to the various donors, Mr. Griffiths proceeded with his Lectures on Chemistry as applied to Construction. Subject: Marbles, Limestone, Mortars, and Cement. — Adjourned.

*July* 9. — P. F. Robinson, V. P., in the chair. Archibald Simpson, architect, of Aberdeen, was elected as Fellow. G. Vulliamy of Pall Mall, and H. G. Atkinson of Upper Gloucester Place, Regent's Park, as Associates.

Various donations were announced as having been received. A Summary of the first three numbers of the Ephemeris of the Archæological Society of Athens was read, translated from the original by Lieutenant-Colonel Leake. (See p. 383.) Mr. Griffiths read the fourth paper of his series. Subject: Paints, Varnishes, &c. — Adjourned.

*July* 23. — Earl de Grey, President, in the chair; J. G. Wilkinson, Esq., Honorary Member; and Messrs. Eginton and Vulliamy, Associates, attending for the first time since their election, were duly admitted by His Lordship in their respective classes. Letters were read from the Chevalier Gesse of Naples, and Signor Ittar of Catania, Honorary and Corresponding Members. Various donations were announced as having been received, amongst which were: On the Manners and Customs of the Egyptians, by J. G. Wilkinson; presented by the author. Inigo Jones's Designs, Pozzo's Perspective, Swan's Architecture, Daniel's Vitruvius, Davila's Architecture, and various other works; presented by H. E. Kendall, Fellow. Letters from the Rajah of Tanjore, and Colonel M'Lean, resident, were read; and the secretary explained the several drawings referred to, consisting of Eleven Illustrations of Pagodas, Temples, Halls, and Palaces at Tanjore, Avidiarcoil, &c.; also the Plan of the Island of Sheevasamoodram, presented by Colonel M'Lean. Mr. Donaldson described the arrangement of a Turkish Bath at Bergamo, in Asia Minor. Mr. Griffiths completed his course of papers on Chemistry as applied to Construction, by describing the elementary principles of Heating and Ventilation in Buildings.

The president expressed to Mr. Griffiths the satisfaction derived by the members and visiters from the instruction conveyed in his interesting course. His Lordship then concluded, by an address to the meeting, enumerating the results of the session, and calling upon the members to avail themselves of the opportunities afforded by the recess, for procuring information to lay before the Institute during the next session.

Resolved, — That the most grateful thanks of the Institute are due to His Lordship for his attendance this evening, and for the advantages resulting to the body from his continued countenance and support.

The Architectural Society held a Special General Meeting on the 3d of July, at which the following Resolution was passed: —

"That a junction of the two Architectural Societies would, if formed upon principles of mutual concession, be highly advantageous to the profession; and that a Committee of five members be forthwith appointed, to confer with a similar number of gentlemen on the part of the Royal Institute of British Architects, and to report the result of such conference to the Society at large on or before the 1st of August following."

"In pursuance of the above Resolution, the following members were the same evening appointed: — Mr. W. B. Clarke, President; Mr. Barnes, Mr. Wyatt, Mr. Moore, Mr. Crake, Mr. Ferrey."

This having been communicated to the Council, Messrs. Barry, Hardwick, and Robinson, Vice-Presidents; and Messrs. Kendall, Taylor, and Donaldson; were appointed to confer with the Committee of the Architectural Society.

These gentlemen, accordingly, had two meetings, and mutually agreed to the following scheme for the union of the two Societies:—

1. The Members of the Architectural Society, who have been in practice seven years, to join the Royal Institute of British Architects as Fellows.

2. Those who have been in practice five years to enter in a new class, to be expressly constituted, under the title of "*Associated Fellows*," and to pay annually three guineas.

3. The Associated Fellows to have all the privileges of Fellows, except voting, and eligibility to offices.

4. The Members elected into the class of "Associated Fellows," become by *right*, and without ballot, Fellows, upon announcing their intention to join such class, at the expiration of their having been in practice seven years; and to pay two guineas, to make their contribution on admission five guineas, equal to that paid by the Fellows of the Royal Institute of British Architects.

5. The class of Associated Fellows to cease at the end of two years.

6. Those under five years to join as Associates, and to pay annually two guineas.

7. A permanent class to be created, called the "Students' Class," at a subscription of one guinea per annum, to receive the students of the Architectural Society.

8. Their privilege to attend all Ordinary Meetings and Lectures.

9. The Members of the Architectural Society to be elected without ballot in their respective classes, as conforming to paragraph 21. of Section IV. of the By-laws of this Institute, upon the introduction of the Council.

10. The several Members so joining to sign the Declaration of the Royal Institute of British Architects.

11. The President and one other Member (or any two) of the Architectural Society to be recommended by the Council of the Royal Institute of British Architects for election forthwith, as members of the Council.

12. The Members of the Architectural Society, who join the Royal Institute of British Architects, to make over to the Royal Institute of British Architects all their shares in the funded property, books, casts, prints, drawings, furniture, and other effects of the Architectural Society, and the same to fall into and become an integral part of the property of the Corporation.

The Institute held a Special General Meeting on the 31st of July, and approved the foregoing propositions. On the following evening, the Architectural Society held also a Special General Meeting, at which the opponents of the scheme mustered in strong numbers; and, unfortunately, the absence abroad, and in the country, of several who supported the measure, a very bad evening as to the weather, and the prevalent opinion of the desirableness of the union and the fairness of the proposition, caused the absence of so many of its friends, that it was decided by a mere majority of one or two, as not being desirable that a junction of the two Architectural Societies should be formed upon the terms contained in the scheme agreed to at the conference.

In consequence of this decision, Mr. Walker, the chairman of the Meeting, and Messrs. Ferrey, Moore, Wright, Bury, Lee, Parish, Woodthorpe, Brandon, Flower, Johnson, and Watson, have withdrawn, and several others have expressed their determination to retire from the Architectural Society. The best friends of the two bodies were extremely anxious to effect the junction, and to destroy the appearance of rivalry to which the existence of two Societies in the same profession seemed to give rise.